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Country Note Hungary

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General Information on EFFORTI

EFFORTI (Evaluation Framework for Promoting Gender Equality in R&I) seeks to analyse and model the influence of measures to promote gender equality on research and innovation outputs and on establishing more responsible and responsive RTDI (research, technology, development, innovation) systems. For this purpose, EFFORTI will

- develop an evaluation framework which enables evaluators, science managers, policy-makers and programme owners to conduct a sound analysis of the research and innovation outputs, outcomes and impacts of gender equality measures across Europe, with a focus on the national level;
- design a differentiated concept to analyse a variety of policy measures and assess their performance, taking into account the diversity in the national policies as well as organizational contexts;
- derive general lessons for evidence-based and thus "good" policy-making in the field of gender equality within RTDI systems. This means not only that progress towards more gender equality in RTDI has been achieved, but also that RTDI has been able to benefit from this progress through enhanced scientific and innovation outputs and productivity, as well as through a higher responsiveness to societal needs and challenges.

Terms of use

This document was developed within the EFFORTI project, funded by the Horizon 2020 programme of the European Commission, by a consortium consisting of six partners: the Fraunhofer Society represented by the Fraunhofer ISI in Karlsruhe and the CeRRI in Berlin (project-coordinator, Germany), the UOC – UNIVERSITY OF CATALONIA (Spain), JOANNEUM Research (Austria), AU – AARHUS UNIVERSITY (Denmark), NaTE – THE ASSOCIATION OF HUNGARIAN WOMEN IN SCIENCE (Hungary), and INTRASOFT International (Luxembourg).

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Introduction

This Hungarian Country Note is one of seven country notes written as part of the H2020 project EFFORTI (Evaluation Framework for Promoting Gender Equality in R&I, No 710470) to analyse the context in which gender equality measures in RTDI take place. EFFORTI seeks to analyse and model the influence of measures to promote gender equality on research and innovation outputs and on establishing more responsible and responsive RTDI (research, technology, development, innovation) systems.

The main objective of this report is to understand the influence of wider contextual framework conditions in Hungary on structuring the situation of women in RTDI, their career opportunities and, subsequently, on the effects of gender equality measures in RTDI. Based on the objectives of the EFFORTI project we have considered following contextual framework conditions as relevant:

- the structure and performance of the research and innovation system,
- gender equality policies in the labour market and welfare policies related to reproductive work and child-care,
- the governance and existing policies of gender equality in RTDI, and
- the evaluation culture and policy especially in the field of gender equality in RTDI.

In a concluding chapter the findings of each country note are summarized. This provides a better understanding of how gender equality policies in RTDI are related to the innovation system on the one hand and to broader policies of gender equality and welfare regimes on the other hand.

With this report we acknowledge the need to analyse the structure and governance of innovation systems and the societal environments in terms of the opportunities and constraints offered by various gender, welfare and innovation regimes for women's employment. This task is particularly important as programmes and initiatives to promote gender equality in RTDI are located at the interface of different policy environments of the innovation system and gender equality as well as welfare policies. For each EFFORTI country (Austria, Denmark, France, Germany, Hungary, Spain, Sweden) such a report was compiled because the selected programmes and initiatives that will be analysed as case studies, are embedded in different contexts and interact differently with their environment. The national country notes will provide a better understanding of these contexts.

Subsequently, the seven national country notes will be compared with each other in a comparative report. The comparative report will focus on the interfaces between the three domains: innovation system, welfare and gender equality policy initiatives, as well as of evaluation cultures, and how they are reflected in gender equality programmes in RTDI. A special emphasis will be put on how gender equality policies are embedded in and aligned with national innovation policies.

Methodology

Most of the research carried out in preparation of the national country notes is desk-based (secondary data collection and analysis of international and national literature). Additional local and sector-level information have been obtained through expert interviews with key informants and through national workshops with stakeholders and evaluators in cases where the information was not available in the collected data or literature.

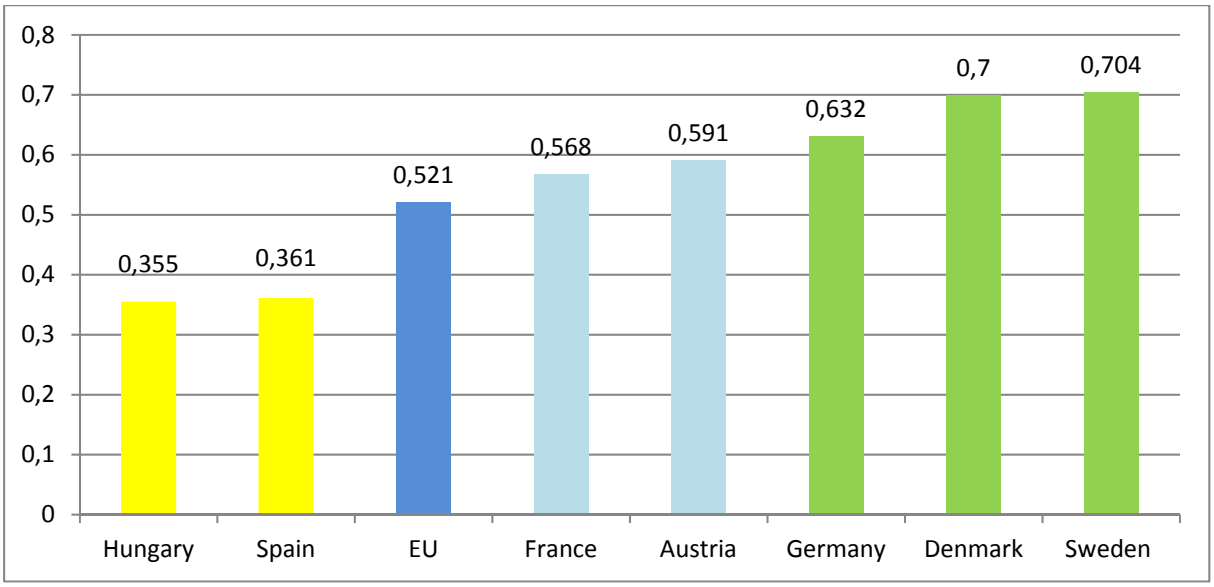
1. Innovation System

1.1 Structure of the research and innovation system

1.1.1 Ranking in the European Innovation Scoreboard (Rank and Class)

On the basis of the European Innovation Scoreboard 2016 (EIS 2016), Hungary's Summary Innovation Index reached 0.355 in 2015 (see Figure 1), which means Hungary is a Moderate Innovator.

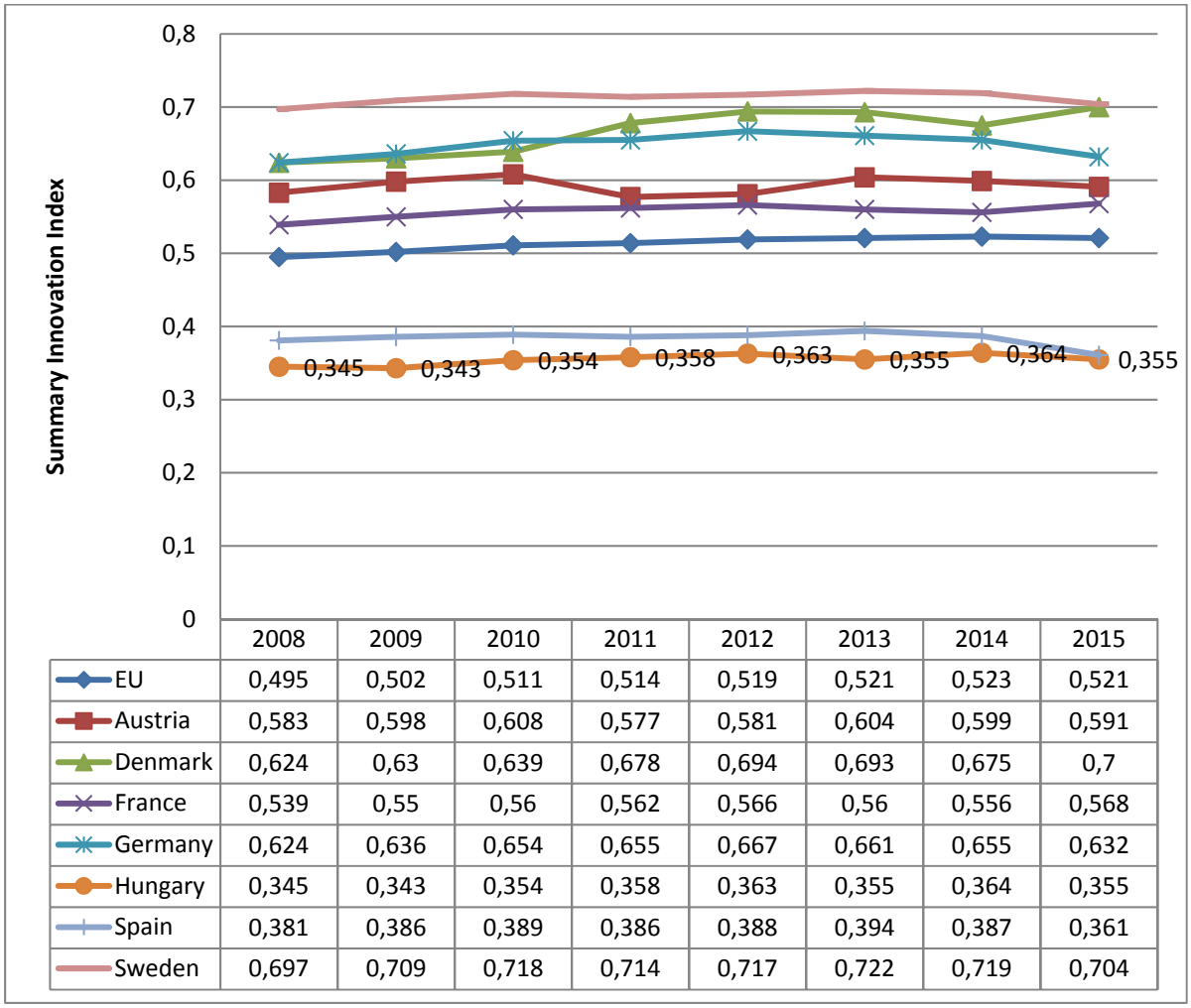
Figure 1: Summary Innovation Index in 2015



Source: EIS 2016 database

The country's innovation performance remained stable between 2008 and 2015 (Figure 2). Among the 28 EU member states plus the EU-28 average, Hungary's ranking accordingly fluctuated between 21 and 22 from 2008 to 2015 (see Annex).

Figure 2: Summary Innovation Index

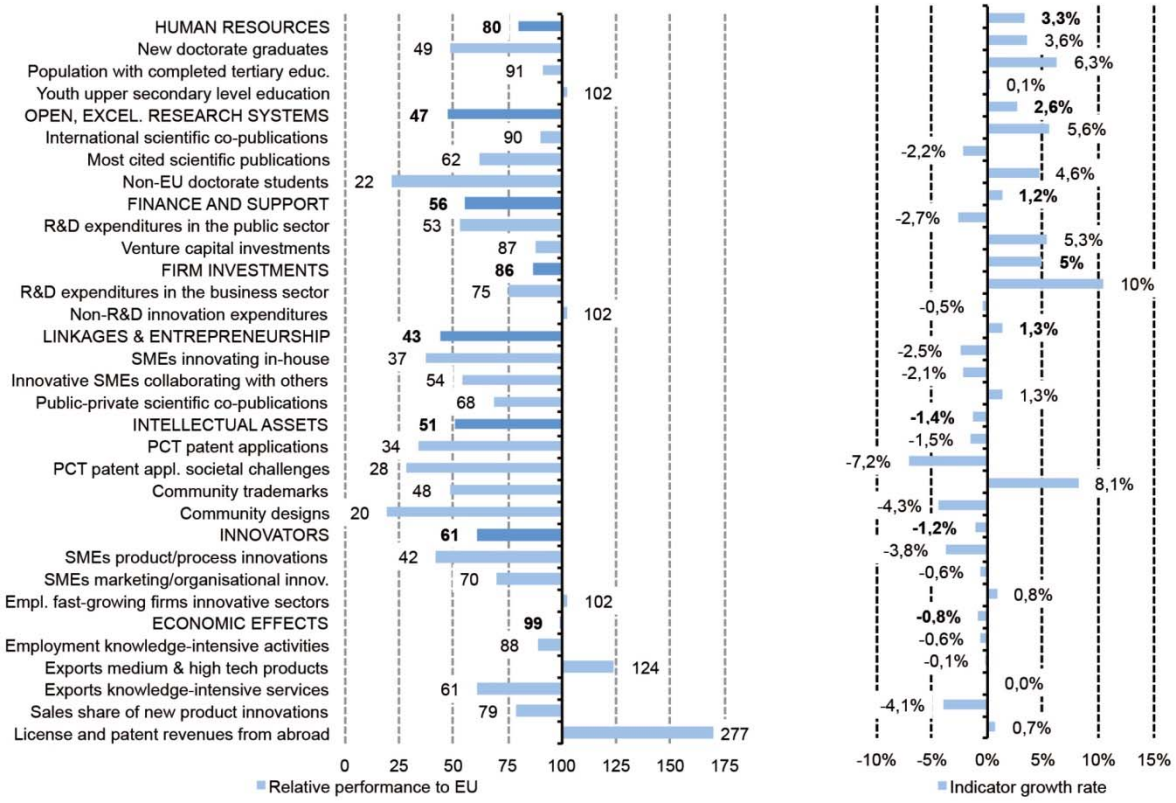


	2008	2009	2010	2011	2012	2013	2014	2015
EU	0,495	0,502	0,511	0,514	0,519	0,521	0,523	0,521
Austria	0,583	0,598	0,608	0,577	0,581	0,604	0,599	0,591
Denmark	0,624	0,63	0,639	0,678	0,694	0,693	0,675	0,7
France	0,539	0,55	0,56	0,562	0,566	0,56	0,556	0,568
Germany	0,624	0,636	0,654	0,655	0,667	0,661	0,655	0,632
Hungary	0,345	0,343	0,354	0,358	0,363	0,355	0,364	0,355
Spain	0,381	0,386	0,389	0,386	0,388	0,394	0,387	0,361
Sweden	0,697	0,709	0,718	0,714	0,717	0,722	0,719	0,704

Source: EIS 2016 database

In the individual dimensions of the innovation index (Figure 3), the performance relative to the EU also displayed fluctuation: over time it declined from almost 70% in 2008 to 68% in 2015 (EIS Hungary Fact Sheet 2016).

Figure 3: Hungary's innovation performance in the dimensions of the EIS, relative to the EU (where the EU is 100)



Note: Performance relative to the EU where the EU = 100.

Source: EIS 2016

Since the 2016 EIS Hungary has performed below the EU average in all dimensions and nearly all indicators, especially with respect to Community designs and Non-EU doctorate students. Relative strengths can be observed with respect to the dimensions License and patent revenues from abroad and Export of medium and high tech products.

However, as can be seen from the indicator growth rate, more than half of the indicators improved compared to 2008. High growth can be noted for R&D expenditures in the business sector (10%), Community trademarks (8.1%) and Population with completed tertiary education (6.3%).

Notable declines in performance are observed in PCT patent applications in societal challenges (-7.2%), Community designs (-4.3%), and Sales share of new product innovations (-4.1%) (EIS 2016, p 63).

1.1.2 Development of the RTDI sector and its subsectors

1.1.2.1 Development of GERD (share of gross domestic expenditure on R&D) between 2005 and 2015

The Hungarian GERD increased every year since 2005, even in and after the years of the economic crisis. The value of GERD was €837.59m in 2005 and it grew to €1,510.96m in 2015. The GERD/GDP increased in the course of the last two decades and peaked at a value of 1.39% of the GDP in 2013,

then slightly decreased to 1.38% in 2015, according to Eurostat data. Nevertheless, the GERD at current prices increased by 6.2 % in 2015 compared to 2014 (see **Fehler! Verweisquelle konnte nicht gefunden werden.** and Annex).

Table 1: Development of GERD (gross domestic expenditure on R&D) as a percentage of GDP between 2005 and 2015 by sector of performance

		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
EU (28 countries)	All sectors	1,74	1,77	1,77	1,84	1,93	1,93	1,97	2,01	2,03	2,04	2,03
	BES	1,1	1,12	1,12	1,16	1,19	1,19	1,24	1,28	1,29	1,3	1,3
	GOV	0,24	0,23	0,23	0,24	0,26	0,25	0,25	0,25	0,25	0,25	0,24
	HES	0,39	0,39	0,4	0,42	0,46	0,47	0,46	0,47	0,48	0,48	0,47
	PNP	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02
Hungary	All sectors	0,92	0,99	0,96	0,98	1,14	1,15	1,19	1,27	1,39	1,36	1,38
	BES	0,4	0,48	0,48	0,52	0,65	0,69	0,75	0,83	0,97	0,97	1,01
	GOV	0,26	0,25	0,23	0,23	0,23	0,21	0,19	0,18	0,21	0,19	0,18
	HES	0,23	0,24	0,22	0,22	0,24	0,23	0,24	0,23	0,2	0,18	0,17
	PNP	:	:	:	:	:	:	:	:	:	:	:

Source: Eurostat, tsc00001

The GERD per capita increased by 19.9% in the period of 2011-2014, still it reached only one-quarter of the EU-28 average (25.9%). The government sector funding also increased from 0.46% of the GDP in 2011 to 0.51% in 2013, then decreased to 0.46% in 2014. R&D funding provided by private non-profit organisations is rather limited; it only reached 0.01% of the GDP in the investigated period.

The cyclical nature of R&D capital expenditure can be perceived again: after the outstandingly high growth measured for 2013, by 2015 the value of capital expenditure dropped to EUR 192 million, and its share of national investments to 1.07%. Current R&D costs rose by 8.4% in 2015, which is a lower rate compared to the previous years,. The 6.5% decrease in the higher education sector was compensated for by the 12.6% development of business enterprises and the more moderate 2.7% rise in the government sector.

The business sector provides the greatest share of the total R&D funding, which remained almost at the same level between 2010 and 2015 (47.3% and 49.7% respectively). The role of business enterprises in financing strengthened further in 2015. 49.7% of the total R&D expenditure came from this source, and the respective share of the government increased to 34.6%, while funds from abroad were reduced perceivably in terms of their amount, as well as their proportion. The role and the intensity of the changes of R&D activities differed substantially by sectors. The research units operating within business enterprises are of growing significance, while higher education and the government sectors are being pushed back slowly but more or less continuously.

It is a positive development that companies located in Hungary invest steadily increasing amounts in research and development. Funding for R&D activities by the business sector grew from 0.57% of the GDP in 2011 to 0.67% in 2014, which amounts to 59% of the EU-28 average in 2014.

The ratio of public funding within the sources of financing for R&D decreased significantly from 39.3% in 2010 to 33.8% in 2014, as its growth could not keep up with the considerable aggregate growth rate of GERD. This decrease is even more remarkable if we consider a longer period, as the

government sector funded half (49.6%) of the total R&D expenditures in 2005. However, it should be noted that the overall public R&D funding increased from 0.45% to 0.51% of the GDP between 2010 and 2013, and then fell back to 0.46% in 2014, while the public expenditures on R&D of GDP decreased from 0.44% in 2010 to 0.38% in 2014. Research and development funding from abroad has a quite high and increasing share of GERD, reaching 17.5 % in 2014, indicating a growth of 41.1% compared to 2010 (12.4%).

Compared to the business sector, universities and public research organisations play a minor role in research with 13.5% and 13.7% of GERD performed in 2014. Concerning PROs, the network of the Hungarian Academy of Sciences (HAS) is the most significant actor and represents 71.2% of the R&D expenditures of the PRO sector (CSO, 2014). (RIO Country report 2015: Hungary, p16)

The National Reform Programmes 2014, 2015 and 2016 reported that Hungary made significant progress in the past few years towards the quantitative R&D target set by the government. The aim set by the RDI Strategy 2013-2020 (Ministry for National Economy (2013)) is to increase the level of research and development expenditures to 1.8% of the gross domestic product (GERD/GDP) by 2020.

The European Commission Staff Working Document (EC, 2015 p. 56) highlighted different aspects of this progress. The RIO Country Report 2015, Hungary pointed out that “public R&D intensity in Hungary decreased over recent years from 0.46% of GDP in 2007 to 0.41% in 2013; this level is not only well below the EU average (0.72%), but also lower than in most of the Central and Eastern European Countries”. (RIO Country report 2015: Hungary, p30)

The patterns of R&D performance by sectors became similar to those of the EU-28 in the period 2011 and 2014. In this period the business sector increased its share from 62.4% to 71.5% (63.8% in EU-28). Higher education organisations underperformed the EU-28 average (23.2%) because their share decreased significantly betweenin the past four years from 20.2% in 2011 to 13.5% 2014. In the same period the research performance of the governmental sector shrank from 15.7% to 13.7%, which is close to the EU-28 average (12.2%). It should be highlighted that the R&D performance of both companies and public research organisations is rather concentrated: more than half of the total business expenditures on R&D was spent by 8% of the total business R&D units. In the case of public research organisations, the 16 research institutes of the Hungarian Academy of Sciences (HAS) are responsible for 71.2% of all the government sector research expenditures. (CSO, 2014)

The EU Structural Funds play a prominent role in the total funding for national R&D, nevertheless no annual statistical data is available on the R&D funded by the Structural Funds. According to the Cohesion Policy Database of the European Commission, Hungary received a total of €2,125.6m from the Structural Funds to R&D and innovation between 2007 and 2013. The annual amount could be estimated to be around €300m, which makes up about one-quarter of the GERD in 2013. It is undoubtedly a strong simplification because this share also includes innovation expenditures, but nevertheless it highlights the significance of the Structural Funds in GERD.

The Hungarian Central Statistical Office publishes the amount of EU grants in funds from abroad in the total R&D expenditure. This share reached 19.9% of the R&D funding coming from abroad in 2014, which makes up 3.5% of the GERD. (RIO Country report 2015: Hungary, p36) https://rio.jrc.ec.europa.eu/en/country-analysis/Hungary

1.1.2.2 Development of the number of researchers between 2005 and 2015 in the whole RTDI sector and its subsectors

The Hungarian government envisages increasing the number of researchers by 50% up to 56,000 (from 37,000 in 2012) in order to achieve the 1.8% GERD/GDP target by 2020 set by the RTDI strategy (Ministry for National Economy (2013)).

There were 2,801 research units operating in Hungary in 2015. (CSO, 2015) The total number of research personnel was 56,235 persons, out of which 25,316 persons worked as full time (FTE) researchers. The number of FTE researchers increased by one-quarter (26.1%) compared to 2009, although it decreased by 1.3% in 2015 compared to 2014 and reached a total of 25,316 FTE in 2015. (CSO, 2015)

Based on Eurostat data, R&D personnel and researchers made up 0.87% of the total labour force and total employment in 2013, which is 22.5% higher than it was in 2009 (0.71%), although it still lags behind the EU-28 average (1.12% in 2013). The crisis did not have much impact on the catch-up of the Hungarian research personnel figure, as the number of researchers grew every year in the past five years, particularly in the business sector. (RIO Country report 2015: Hungary, p65)

Since 2004 all sectors have increased the size of their research units. They employed 5.8 researchers (FTE) per research unit in 2004 and 9.03 researchers (FTE) per research unit in 2015. While public research units employ 60 researchers (FTE) on average, the research units of higher education organisations are much smaller, with only 6 FTE researchers per unit. The differences are smaller when looking at the R&D expenditures per researcher; this value was about €24,660 and about €27,000 respectively (in 2013). In 2013 the business sector employed 57.2% of all researchers (FTE), higher education organisations 23.7% and the PROs 19.1%. The corresponding figures ten years ago were: 28.9%, 39.6% and 31.5%, respectively. The change is due to the business sector increasing the employment of researchers more than three times, from 6,704 to 22,244 researchers (FTE) between 2004 and 2013.

Researchers both in the business sector and public research organisations dedicate more than 80% of their working time to research and development activities, while this ratio is only 35% in the higher education organisations where staff members are mainly involved in teaching. In 2013 more than 80% of total research-development expenditures (GERD) were spent in the fields of engineering sciences (54%) and natural sciences (26%). Pharmaceutical companies carry out the most intensive research-development activities (19% of BERD), followed by the ICT, machinery and transport sectors. (CSO 2014)) (RIO Country report 2015: Hungary, p20)

1.1.3 Key developments in the RTDI system in Hungary

Since 2015 the Science, Technology and Innovation system in Hungary went through major of restructuring. Key developments carried out in 2015 in the research and innovation system as part of the RTDI system included:

- Establishment of the National Research, Development and Innovation Office (NRDI Office) which, from January 2015, integrates the activities of the previous National Innovation Office and the ministry departments responsible for innovation policy.
- Establishment of the National Research, Development and Innovation Fund (NKFIA) in January 2015, which integrates the Hungarian Scientific Research Fund (OTKA) and the former Research and Technological Innovation Fund (KTIA) programmes.

- Launch of new research measures funded by the Operational Programmes (i.e. GINOP, VEKOP and EFOP) co-funded by the EU Structural Funds (ERDF and ESF). (RIO Country report 2015: Hungary, P6)

According to the RIO Country report, the challenges identified for Hungary's R&D system are:

(1) Stabilising the RTDI governance.

(2) Fostering innovation in domestic enterprises.

(3) Enhancing the cooperation between science, higher education and business.

(4) Sustaining the supply of human resources for the RTDI system. (RIO Country Report: Hungary 2015, P7)

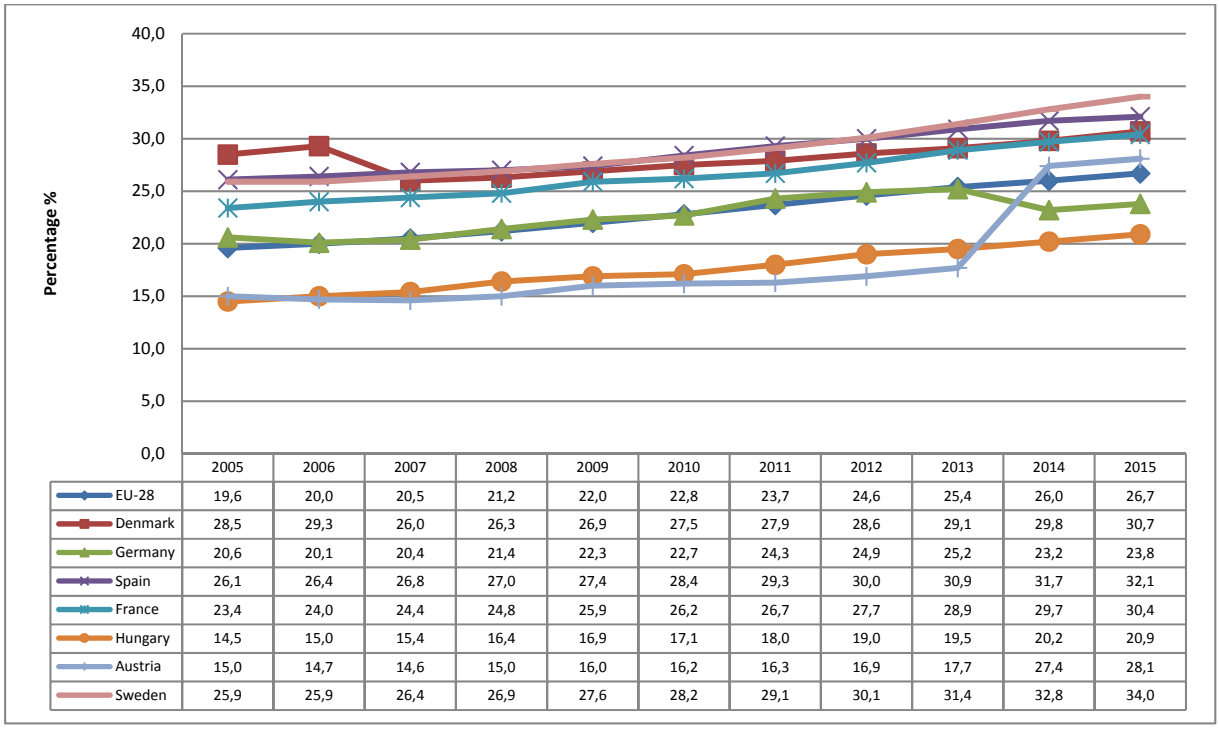
The 2016 Peer Review suggests that a formal platform for stakeholder involvement should be developed to establish a participatory process of nurturing synergies, dialogue and advice on RTDI and to ensure stakeholder ownership and oversight of NRDI Office activities. This platform can take the form of a supervisory board of NRDI Office that includes broad representation of stakeholders of the Hungarian R&I system, including representatives of relevant governmental departments. (Peer Review, 2016, p. 38) Presently it is not known whether this platform will be established or not.

1.2 Knowledge intensity of economies

1.2.1 Share of ISCED 6 STEM graduates in the whole population

For the investigated countries the share of tertiary education (levels 5-8[1]) in the age group of the population from 15 to 64 years is shown in Figure 4.

Figure 4: Share of tertiary education (levels 5-8)* in the age group of the population from 15 to 64 years



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
EU-28	19,6	20,0	20,5	21,2	22,0	22,8	23,7	24,6	25,4	26,0	26,7
Denmark	28,5	29,3	26,0	26,3	26,9	27,5	27,9	28,6	29,1	29,8	30,7
Germany	20,6	20,1	20,4	21,4	22,3	22,7	24,3	24,9	25,2	23,2	23,8
Spain	26,1	26,4	26,8	27,0	27,4	28,4	29,3	30,0	30,9	31,7	32,1
France	23,4	24,0	24,4	24,8	25,9	26,2	26,7	27,7	28,9	29,7	30,4
Hungary	14,5	15,0	15,4	16,4	16,9	17,1	18,0	19,0	19,5	20,2	20,9
Austria	15,0	14,7	14,6	15,0	16,0	16,2	16,3	16,9	17,7	27,4	28,1
Sweden	25,9	25,9	26,4	26,9	27,6	28,2	29,1	30,1	31,4	32,8	34,0

[1] According to ISCED 2011, Level 5 – Short-cycle tertiary education, Level 6 – Bachelor's or equivalent level, Level 7 – Master's or equivalent level, Level 8 – Doctoral or equivalent level

Remarks: * According to ISCED 2011, Level 5 – Short-cycle tertiary education, Level 6 – Bachelor's or equivalent level, Level 7 – Master's or equivalent level, Level 8 – Doctoral or equivalent level
Source: EUROSTAT, Population by educational attainment level, sex and age (%) - main indicators

In Hungary the participation in tertiary education in the age group of the population from 15 to 64 years grew from 14.5 % in 2004 to 20.9 % in 2015. Nevertheless, participation remains quite modest, ranking only 21st among the EU-28 countries.

The share of tertiary educated population among the group of 25 to 34 years old is shown in **Fehler! Verweisquelle konnte nicht gefunden werden.**.

Table 2: Share (%) of tertiary educated population among the group of 25 to 34 years old*

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
EU28	28,3	29,2	29,9	30,9	32,3	33,3	34,4	35,5	36,5	37,2	37,9
Austria	19,7	19,0	18,7	19,2	21,0	20,7	20,9	22,8	24,9	38,4	38,6
Denmark	39,8	40,8	36,2	36,4	37,6	37,6	38,6	40,2	41,2	42,7	44,5
France	39,9	41,5	41,4	40,6	42,9	42,7	42,8	42,6	43,9	44,3	44,7
Germany	22,5	22,0	22,6	23,9	25,7	26,0	27,6	28,9	29,9	28,4	29,6
Hungary	19,6	20,7	22,0	24,1	25,1	26,1	28,2	30,5	31,2	32,1	32,1
Spain	40,7	40,3	40,0	40,0	39,5	40,3	40,3	40,4	41,1	41,5	41,0
Sweden	37,3	39,2	39,9	40,9	42,4	42,3	42,8	43,5	44,9	46,0	46,5

* Introduction of the ISCED 2011 classification: data up to 2013 are based on ISCED 1997, as from 2014 ISCED 2011 is applied.
Source: Eurostat, Population by educational attainment level, sex and age (%)[edat_lfse_03]

It is nevertheless a positive trend that the share of the population aged 30-34 having completed tertiary education increased slightly to 32.1% by 2015, starting to close the gap between the Hungarian value and the EU average (37.9%). The share of persons with tertiary education in Hungary in the total active population shows an increasing decennial trend: from 16% in 2000 it increased to 24.8% in 2013, which, however, is still lower than the EU average (30.3%). The share of persons with tertiary education employed in science and technology shows a similar trend, moreover, by 2013 Hungary had practically caught up with the EU in this respect (17.9% vs. 19.1% - EU average). (RIO Country report 2015: Hungary, p11)

Educational attainment matters greatly in Hungary's labour market: people with tertiary education have much higher employment rates and earn more than twice as much than those without it.

Bridging the gap between secondary and tertiary attainment remains the main challenge. In Hungary 94% of young people are expected to graduate from upper secondary education during their lifetimes, one of the highest rates among OECD countries. On the other hand, only 23% of young people are expected to complete academic tertiary education (tertiary-type A), compared with an average of 39% for OECD countries, and since 2010 this rate has decreased considerably, by almost 9 percentage points. Since the rate of young people expected to enter tertiary-type A education has been stable for the last few years and is not much lower than the OECD or EU21 average (54% versus 58% and 56% respectively), it seems that the main challenge isto increase the educational attainment in Hungary. (OECD – Country Note Hungary 2014, p1, in OECD, 2014)

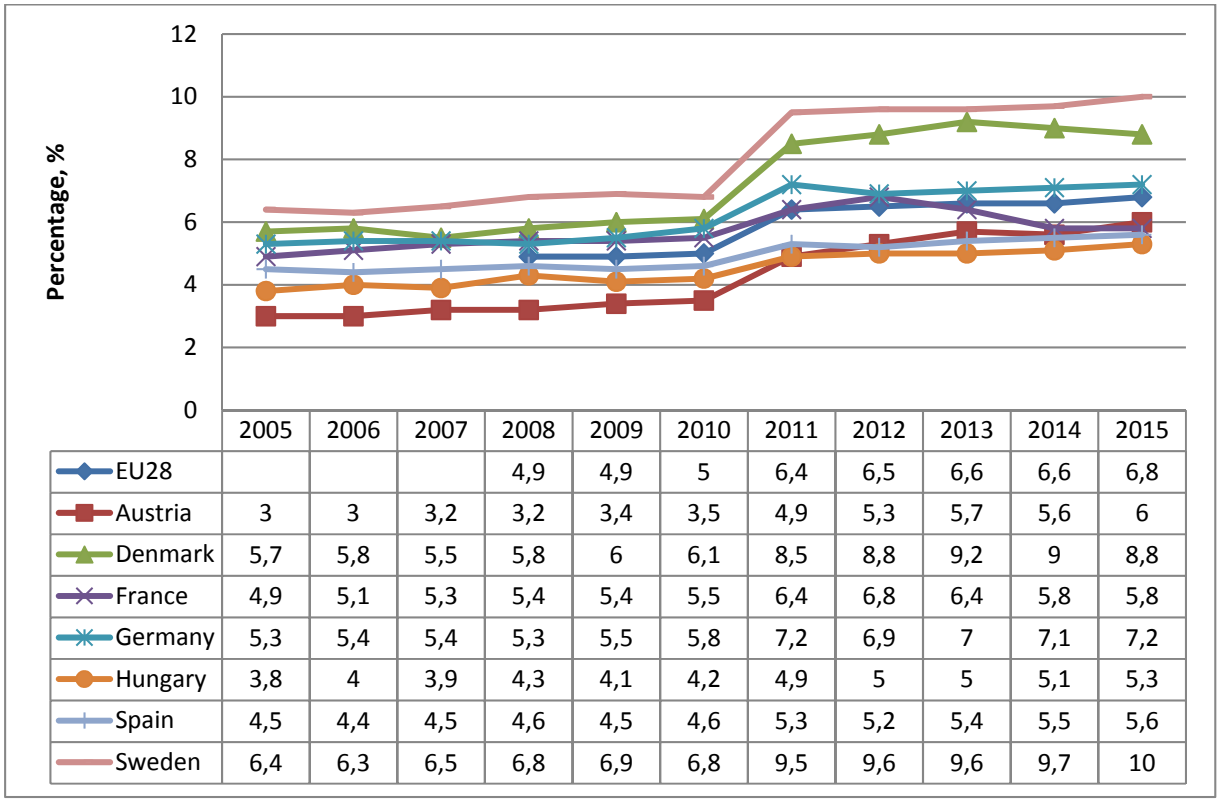
The share of persons with tertiary education employed in high and medium high-tech manufacturing in the total employment reached 6.4% in 2014, outpacing the EU average (5.3%), but it is still only the second highest proportion after the Czech Republic (7.1%). The rates are similar with respect to

knowledge-intensive high-tech services: Hungary (6.1%), Czech Republic (7.7%), and Slovakia (7.2%), and EU average (5.7%). Brain-drain primarily affects highly qualified young people, especially those with S&E degrees that are overrepresented within the group of Hungarians working abroad. The main barrier to pursuing a career in research is low salaries, especially in the early years of researchers, even within the national context. (RIO Country report 2015: Hungary, p11)

1.2.2 Proportion of scientists and engineers in total labour force

The proportion of scientists and engineers in the active population between 15 and 74 years is shown in Figure 5.

Figure 5: Proportion of scientists and engineers in the active population between 15 and 74 years , by year



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
EU28				4,9	4,9	5	6,4	6,5	6,6	6,6	6,8
Austria	3	3	3,2	3,2	3,4	3,5	4,9	5,3	5,7	5,6	6
Denmark	5,7	5,8	5,5	5,8	6	6,1	8,5	8,8	9,2	9	8,8
France	4,9	5,1	5,3	5,4	5,4	5,5	6,4	6,8	6,4	5,8	5,8
Germany	5,3	5,4	5,4	5,3	5,5	5,8	7,2	6,9	7	7,1	7,2
Hungary	3,8	4	3,9	4,3	4,1	4,2	4,9	5	5	5,1	5,3
Spain	4,5	4,4	4,5	4,6	4,5	4,6	5,3	5,2	5,4	5,5	5,6
Sweden	6,4	6,3	6,5	6,8	6,9	6,8	9,5	9,6	9,6	9,7	10

Source: Eurostat, HRST by category, sex and age [hrst_st_ncat]

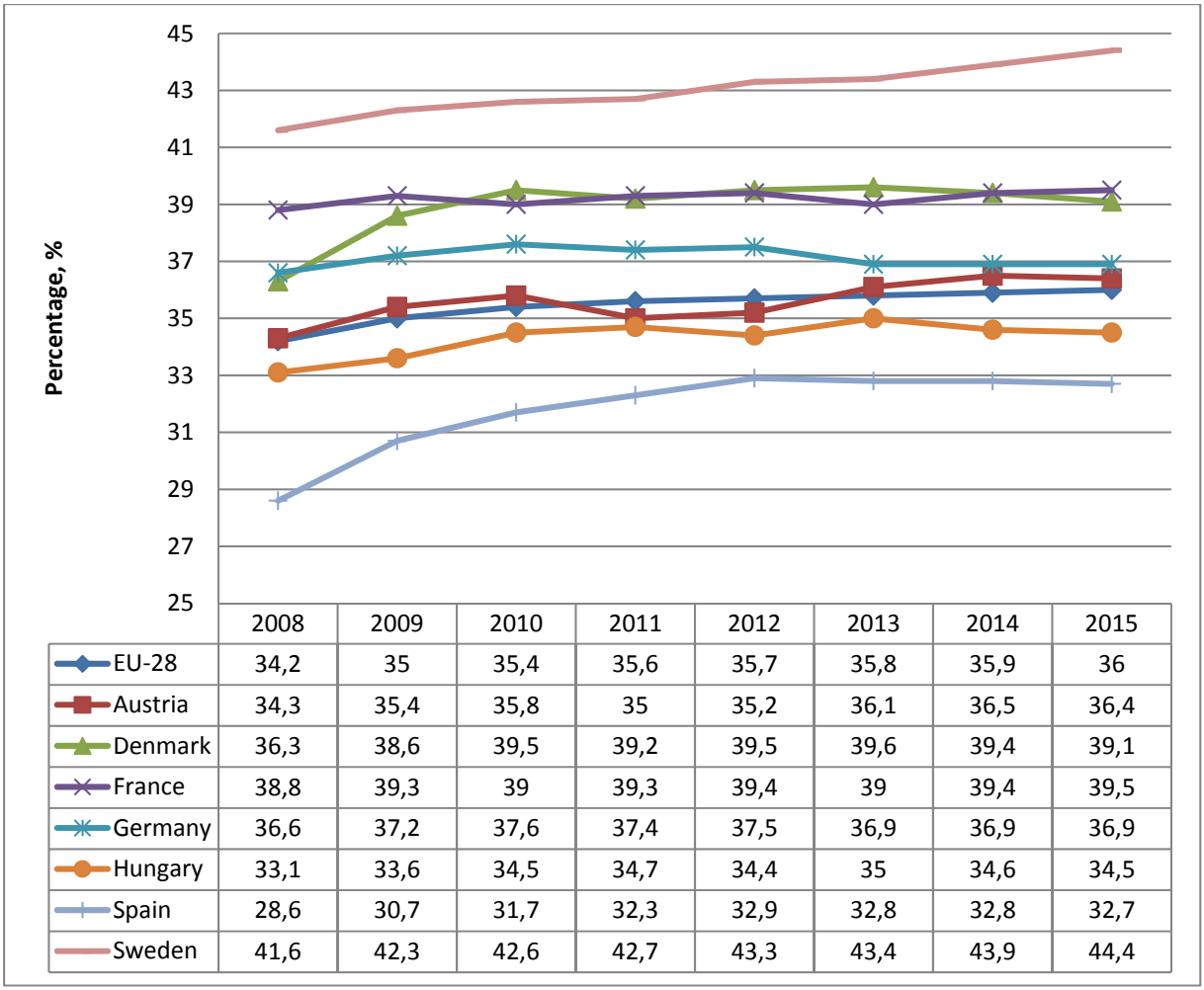
In Hungary the percentage level of scientists and engineers in the active population between 15 and 74 years of age grew from 3.8 % in 2005 to 5.3 % in 2015. This share is still quite modest, ranking Hungary 23rd place among EU-28 countries. (See in Annex)

1.2.3 Employment in knowledge intensive activities

1.2.4 Employment in knowledge intensive activities (KIA) by sex

Annual data on the employment in knowledge-intensive activities as a percentage of total employment at the national level (from 2008 onwards, NACE Rev. 2) is shown in Figure 6.

Figure 6: Annual data on employment in knowledge-intensive activities as a percentage of total employment at the national level (from 2008 onwards, NACE Rev. 2)



	2008	2009	2010	2011	2012	2013	2014	2015
EU-28	34,2	35	35,4	35,6	35,7	35,8	35,9	36
Austria	34,3	35,4	35,8	35	35,2	36,1	36,5	36,4
Denmark	36,3	38,6	39,5	39,2	39,5	39,6	39,4	39,1
France	38,8	39,3	39	39,3	39,4	39	39,4	39,5
Germany	36,6	37,2	37,6	37,4	37,5	36,9	36,9	36,9
Hungary	33,1	33,6	34,5	34,7	34,4	35	34,6	34,5
Spain	28,6	30,7	31,7	32,3	32,9	32,8	32,8	32,7
Sweden	41,6	42,3	42,6	42,7	43,3	43,4	43,9	44,4

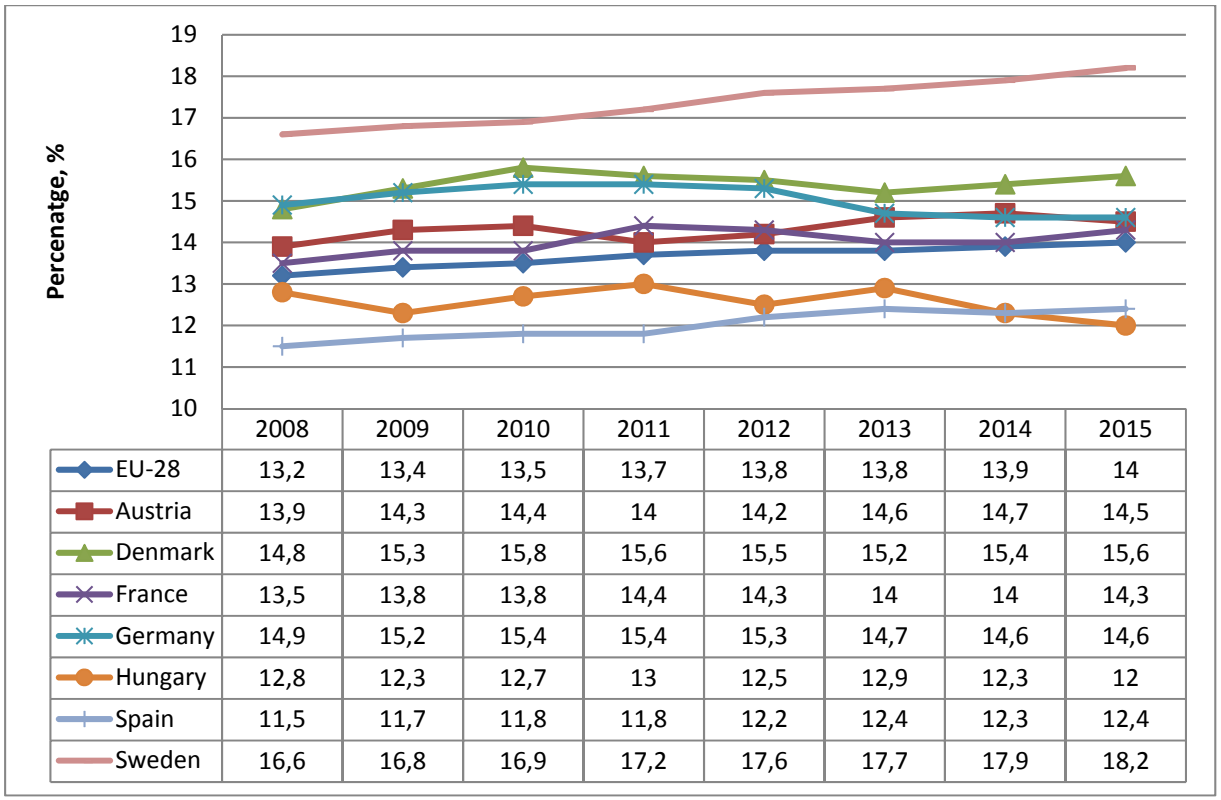
Source: Eurostat, employment in knowledge intensive activities [htec_kia_emp2]

In Hungary the employment rate in knowledge-intensive activities as a percentage of total employment at the national level reached 34.5 % in 2015, which implies a slight decline compared to 2013 when the percentage was the highest at 35%. Nevertheless, the employment rate in knowledge-intensive activities between 2008 and 2015 remains around the same level.

1.2.5 Employment in knowledge intensive activities – business activities (KIABI)

Annual data on employment in knowledge-intensive business activities (KIABI) as a percentage of total employment at the national level is shown in Figure 7.

Figure 7: Employment in knowledge intensive activities – business activities (KIABI)



	2008	2009	2010	2011	2012	2013	2014	2015
EU-28	13,2	13,4	13,5	13,7	13,8	13,8	13,9	14
Austria	13,9	14,3	14,4	14	14,2	14,6	14,7	14,5
Denmark	14,8	15,3	15,8	15,6	15,5	15,2	15,4	15,6
France	13,5	13,8	13,8	14,4	14,3	14	14	14,3
Germany	14,9	15,2	15,4	15,4	15,3	14,7	14,6	14,6
Hungary	12,8	12,3	12,7	13	12,5	12,9	12,3	12
Spain	11,5	11,7	11,8	11,8	12,2	12,4	12,3	12,4
Sweden	16,6	16,8	16,9	17,2	17,6	17,7	17,9	18,2

Source: Eurostat, employment in knowledge intensive activities [htec_kia_emp2]

If we consider only knowledge-intensive business activities, then the KIABI as a percentage of total employment at the national level reached 12% in 2015 in Hungary, which also indicates some decline compared to 2011, when the percentage was the highest at 13%. However, the average rate has remained around the same level since 2008.

1.2.6 Number of scientific papers in relation to the population size

According to the European Innovation Scoreboard 2016 data, the international scientific co-publications per million population for Hungary are shown in Table 3.

Table 3: Number of scientific papers in relation to the population size

	2008	2009	2010	2011	2012	2013	2014	2015
EU-28	295,7	315,2	335,4	361,4	386,3	418,1	437,7	459,2
Hungary	281,7	298,3	299,6	338,7	367,9	379,7	398,1	413,8

Source: European Innovation Scoreboard 2016

The international scientific co-publications per million population after an increase reached 413.8 publications in 2015 after an increase of 4 % compared to 2014, which is slightly below the average

EU-28 figures (459.2). However, from 2008 to 2015 we can observe a 46 % increase, which is a sign of increased scientific activity mainly in fundamental sciences.

1.2.7 Number of patents

Although the number of granted patents grew from 2012 PCT patents in 2008 to 3947 in 2015 (see **Fehler! Verweisquelle konnte nicht gefunden werden.**), the PCT patents applications per billion GDP (in PPS€) declined from 1,33 in 2008 to 1,19 in 2015. (**Fehler! Verweisquelle konnte nicht gefunden werden.**)

Table 4: Patent activity in Hungary

Year	Number of national patent applications	Of which:		Number of granted patents	Number of valid patents
		domestic patent applications	foreign patent applications		
2008	772	682	90	2 212	11 462
2009	821	756	65	2 688	12 749
2010	696	646	50	3 031	13 853
2011	698	660	38	3 195	15 390
2012	748	689	59	3 278	16 988
2013	708	641	67	4 965	19 130
2014	619	546	73	3 718	20 426
2015	633	569	64	3 947	21 851

Source: CSO, Hungary, http://www.ksh.hu/docs/eng/xstadat/xstadat_annual/i_ohk006.html

Table 5: PCT patents applications per billion GDP (in PPS€)

	2008	2009	2010	2011	2012	2013	2014	2015
EU-28	3,98	3,93	3,71	3,90	3,86	3,88	3,72	3,53
Denmark	7,14	7,90	7,15	6,85	6,46	6,89	6,15	6,24
Germany	7,56	7,63	6,92	7,57	7,48	7,15	6,66	6,26
Spain	1,25	1,28	1,35	1,55	1,66	1,62	1,51	1,48
France	3,88	3,86	3,91	4,14	4,05	4,22	4,14	3,77
Hungary	1,33	1,57	1,36	1,49	1,48	1,58	1,32	1,19
Austria	5,17	5,03	4,45	5,04	5,29	5,19	4,76	5,06
Sweden	10,19	10,51	9,96	10,27	9,54	9,13	9,79	7,99

Source: European Innovation Scoreboard 2016

1.3 Governance

1.3.1 Main actors in research and innovation governance

1.3.1.1 Ministries responsible for RTDI

The main governmental body responsible for RTDI in Hungary is the National Development Cabinet (NFK) headed by the prime minister. (Source: Country data)

The key players of the Hungarian science, technology and innovation (STI) policy system are the Parliament, specifically the Education, Science, and Research Committee; the National Development Cabinet; the Ministry of National Development; the Ministry for National Economy; the Ministry of Human Resources; the NRDI Office; and the Hungarian Academy of Sciences (HAS).

The main policy making bodies are the Parliament and its committees. Policies are formed and approved by the government. The National Development Cabinet (NFK), established in 2012 and chaired by the Prime Minister, is a high level political body which co-ordinates all major governmental development actions, including RTDI policy decisions. Notably, it is responsible for EU co-financed projects and those with a budget over EUR 3.2 million and has the mandate to coordinate governmental STI policy decisions. The National Science and Innovation Policy Board, established in 2013 and also chaired by the Prime Minister, provides support regarding strategic programmes, their long-term financing, and the evaluation of the effectiveness of the institutions conducting research.

Apart from the Prime Minister, the ministers of the Prime Minister's Office, the Ministry of National Economy and the Ministry of National Development participate in this high-level decision making body. If needed, other ministers are invited to the meetings of the NFK as well. In addition, the Ministry of Human Resources, the Ministry of Justice and the Ministry of Agriculture also have responsibilities in research and development. (RIO Country report 2015: Hungary, P17)

The public organisations of the higher education sector belong to the Ministry of Human Capacities. The Hungarian Intellectual Property Office works under the Ministry of Justice. Also, the Ministry of Agriculture has responsibilities in research, development and innovation as well as dedicated funding for agriculture and food related research activities.

At operational level, since 1 January 2015 the National Research, Development, and Innovation Office (NRDI Office) has been the main governmental body responsible for funding RTDI . The NRDI Office was established by Act LXXVI of 25 November 2014 on "Scientific Research, Development, and Innovation" in order to integrate strategy-making and governance of research-development and innovation, as well as to coordinate RDI funding. The NRDI Office is the legal successor of the National Innovation Office (NIH), established in 2010, whose main tasks also included strategy-making and programme planning, as well as international RDI collaboration. (RIO Country report 2015: Hungary, P18) https://rio.jrc.ec.europa.eu/en/country-analysis

While in most countries, science and innovation agencies that deliver policy do so on behalf of a principal (usually a ministry responsible for RTDI), the president of NRDI Office reports directly to the Parliament and NRDI Office is also directly subordinated to the Prime Minister's Office (Act LXXVI of 2014, Section 8). It is therefore not accountable to other relevant ministries (with the exception of the Prime Minister's Office, which coordinates the work of the government). NRDI Office coordinates

activities targeting Hungary's regions, centralizing the project selection processes and taking over the tasks that used to be carried out by regional agencies in the previous financial perspective of the EU.

At policy implementation level, the NRDI Office is a governmental body responsible for research, development and technological innovation, including contributions to strategy-making and programme planning, as well as for international research, development and innovation (RD&I) collaboration.

1.3.1.2 Major Funding Agencies (national & regional)

In Hungary the major funding agency for RTDI funding is the National Research, Development and Innovation Office (NRDI Office).

The Hungarian research and innovation funding system changed substantially in 2015, when the NRDI Office was created. The official justification behind the concentration of all RDI funding programmes under NRDI Office was to manage all RDI related national calls in line with the official RDI policy and in a standardised and transparent way, in order to achieve the highest possible impact and excellence. Also, the NRDI Office is involved in the evaluation of project proposals and runs a professional network of reviewers.

The NRDI Office is responsible for the National Research, Development and Innovation Fund (NRDI Fund). This fund integrates the Hungarian Scientific Research Fund (OTKA) and the Research and Technological Innovation Fund (KTIA) programmes. This integrated fund had a budget of about €247m for 2015 set in the law stipulating the annual budget. In addition, the president of the NRDI Office is responsible for coordinating the RDI strategy-making, including the Operational Programmes supported by the EU Structural funds, and for developing the RDI funding instruments of the Hungarian government in collaboration with respective ministers and the president of the Hungarian Academy of Sciences (HAS). Nevertheless, in the case of the concerned Operational Programmes the final say in funding decisions remains with the Managing Authority of the Ministry for National Economy. (RIO Country report 2015: Hungary, P51)

In the past few years a number of STI policy advisory bodies established. The most recent one is the National Science Policy and Innovation Board (NTIT) that was established by government decree 116/2013 (IX.25.). The president of the NTIT is the Prime Minister, and the co-chairman is the president of the Hungarian Academy of Sciences (HAS). The mandate of the board is to advise, evaluate and make recommendations on strategic issues of scientific, research and development and innovation programmes, the sustainable financing of these programmes and the evaluation methodology to be carried out at scientific institutions. There is currently no evidence that meaningful external advice has largely supported the NRDI Office in performing its comprehensive functions. While a number of advisory bodies to NRDI Office are foreseen in the system, the International Advisory Board of NRDI Office met only once so far and there is no record of the National Science Policy and Innovation Board (NTIT), which is a parliamentary body, ever meeting during the past 5 years. Based on Act LXXVI of 2014, NRDI Office appoints its Innovation Board but the Board's role is not precisely defined and its members are selected by NRDI Office. (Peer Review, 2016)

An International Scientific Advisory Board started its work to provide the president of the NRDI Office with strategic advice. The five members of this board are prominent foreign scientists experienced in science policy and R&D funding. The first meeting of the board was held in December 2015 in order to overview and evaluate the operation of the reorganised RDI funding system, as well as to make proposals for improvements. (RIO Country report 2015: Hungary, P18)

https://rio.jrc.ec.europa.eu/en/country-analysis

1.3.2 Relevance of national and regional levels in RTDI policy and financing

Hungary is characterized by a centralised decision-making system with regard to the major policy areas, including science, technology and innovation policies. Hungarian regions on NUTS2 level are only statistical regions; they have neither democratically elected leaderships, nor any power to raise revenues, e.g. regional taxes. Since 1 January 2013, new territorial administrative units, districts (NUTS3 level) were created within the 19 counties. These districts have no significant role regarding STI policy-making. (RIO Country report 2015: Hungary, p16)

NRDI Office coordinates activities targeting Hungary's regions, centralizing the project selection processes and taking over the tasks that used to be carried out by regional agencies in the previous financial perspective of the EU. (Peer Review, 2016)

Central Hungary (notably the city of Budapest and the Pest County) dominates the RTDI landscape of Hungary. In 2011 this region accounted for 65.8% of all Hungarian researchers (FTE) and 60.5% of corporate researchers, 62.9% of R&D expenditures, 62.5% of current R&D expenditures and 66.1% of R&D capital expenditures incurred by manufacturing enterprises, as well as 96.6% of international patent applications High-tech industries including pharmaceuticals, electronics, optical products and ICT maintain the majority of their R&D activities, employment and expenditures in Budapest), while regions other than Central Hungary focus rather on medium-to-high-tech industries, including the manufacture of transport vehicles and electronic equipment. Central Hungary was also the leading region in attracting national and international grants and subsidies for RTDI in years 2004-2011. (NIH (2013) quoted in Peer Review, 2016)

In the period of 2014-2020, disproportionally high public RTDI funding is available through the operational programme GINOP for companies located in regions other than Central Hungary, in an attempt to significantly improve the regional innovation performance. RTDI performers in Central Hungary are not eligible for support in GINOP, but have their own operational programme VEKOP (albeit with a much smaller budget and more limited list of support measures). They can also apply to NRDI Office in calls that mirror the instruments available in GINOP but are funded from the state budget and the innovation levy. While the measures included in GINOP and VEKOP are planned until 2020, there is less certainty with respect to the nationally-funded measures. Even though the central region stands out in terms of innovativeness, it still suffers from structural challenges, including a low share of innovative companies among all business enterprises, and needs to be targeted by RDI policy mix. (Peer Review, 2016)

Financing of RTDI

Hungary applies a very broad mix of support measures. The majority of instruments are direct interventions, targeting the generation of knowledge and innovation (supply-side measures), comprising a mix of different grant schemes and financial instruments, including equity investments,

loans and guarantees. Currently the NRDI Office administers both the grants for scientific research and the development for innovations by private sector actors, and a significant share of these schemes is financed from the EU Structural Funds. In addition, business enterprises can benefit from indirect support measures: tax incentives for R&D, and the government distributes institutional funding to public research organisations, including the Hungarian Academy of Sciences and universities (without directly linking the overall amount of funding allocated to specific institutions to their scientific performance). (Peer Review, 2016)

Apart from institutional funding, the direct public financial resources for RTDI in Hungary come from two main sources:

a) from innovation levy, and
b) from the EU Structural funds dedicated to innovation purposes through different operational programmes.

The innovation levy is an obligatory quarterly payment by all medium-sized and large companies in Hungary and paid to the National Custom and Tax Administration, which subsequently transfers the amount to NRDI Office as the basis for the National Research, Development and Innovation Fund, which is the main source of the state funding for R&I, supplementing the EU Structural Funds. The levy amounts to 0.3% of the tax base and provides a sustainable source of RTDI financing, redistributed to business enterprises and scientific organisations.

The Hungarian annual budget does not make explicit reference to foregone tax revenues. Concrete figures for R&D tax incentives are not systematically reported. The country offers a limited range of R&D tax incentives and they are often combined with other incentives at regional level (e.g. subsidized land prices). Generally the emphasis is more on attracting foreign direct investors using regionally differentiated schemes and incentives. The country also applies a case-by-case approach to negotiating in particular with individual and larger investors. There is little differentiation and no special schemes offered to SMEs. (RIO Country report 2015: Hungary, p41)

In 2013 Hungary distributed as much as 0.13% of its GDP through R&D tax incentives. The R&D tax allowances are used by a relatively small number of taxpayers (Ministry for National Economy, 2013, p. 4). Interestingly, the Hungarian R&D tax incentives turn out to be very generous compared with other countries, but distributed among a relatively small number of beneficiaries. The eligibility rules are not always clear and they imply a heavy administrative burden related to the use of R&D tax incentives. Therefore the attractiveness of the Hungarian tax measures supporting RTDI remains limited (Peer Review).

2. Gender equality policies

2.1 Employment and labour market policies

2.1.1 Description of equal opportunity/ anti-discrimination legislation and legislation to foster gender equality

The following EU legislations were ratified by Hungary: the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) and the „Additional Protocol" (Act LX 2001), the Beijing Declaration of the Fourth World Conference on Women in 1995 (govt resolution 2174/1997 VI.26). Hungary adopted and implemented the Acquis Communautaire in 2004. (Fodor 2013) The ratification of the Istanbul Agreement is still in progress and foreseen for the upcoming years.

Fundamental Law of Hungary, 25 April 2011 (Magyar Közlöny (MK), 2011/43 p. 10656) (and its five amendments)

In Hungary the constitutional law called the Fundamental Law is the most important legislative basis of gender equality. GE is discussed in Article XV which guarantees fundamental rights for everyone without discrimination based on race, colour, sex, disability, language, religion, political or other opinion, national or social origin, property, birth or any other status. Besides this anti-discrimination statement Article XV (3) stipulates that 'women and men shall have equal rights.' (EC 2015, Country Report Gender Equality: Hungary)

Act CXXV of 2003 on Equal Treatment and the Promotion of Equal Opportunities

Another important legislative act of equality is the Act on Equal Treatment and the Promotion of Equal Opportunities (Act CXXV of 2003). The Equality Act prohibits discrimination on the basis of protected characteristics such as gender, ethnic origin, race, skin colour, age, mother tongue, disability, state of health, motherhood (pregnancy) or fatherhood, family status, sexual orientation, gender identity, social origin, financial status, religious or ideological conviction, political or other opinion, part-time status or fixed-term of employment relationship, membership in an interest representation organization, any other status. This act contains the basic concepts of equality which shall be applied systematically in the legal system. Moreover, the Equality Act also prohibits direct or indirect discrimination in the case of wages.

Unfavourable demographical characteristics put the government under pressure: support for child rearing and work-life reconciliation had to be improved. A couple of laws have been changed in accordance with these aims. The purpose of the government was to develop a framework that provides better choices for families: for those who want to stay at home with the children, those who want to go return to work after six months after childbirth but still would like to receive childcare benefits, and for fathers who would like to stay at home.

Work-life balance and labour market participation: Act I of 2012 on the (new) Labour Code (MK 2012/2 p. 257)

The new Labour Code which came into force in 2012 contains regulations concerning equal pay, paternity leave and part-time employment of mothers returning from parental leave.

The policies recently introduced by the government aim to give the right of choice for parents between childbearing and employment. The reason behind this ambition is that Hungarian fertility

rates are among the lowest in Europe. To tackle the problem the government decided to start developing childcare services and new labour market incentives in order to ensure that parents can easily return to work and find balance between life and work.

It is stipulated in Article 12 of the Labour Code that equal treatment should be applied in particular in relation to wages – equal jobs shall be paid equally. The previous Labour Code obliged employers to prepare an equal opportunity plan, which, however, was omitted from the new legislation.

In order to support families with a newborn, fathers are entitled to take an extra paid leave of 5 days till the end of the second month after the childbirth (seven days in case of twins) in parallel with maternity leave. This leave is paid by the employer but technically it is paid by the state, as employers can claim a reimbursement for this from the state. The government also decided to support fathers in taking greater part in child rearing and made an extra paid leave of 2 days per child per year available also for fathers.

The Labour Code has new elements that aim to boost the labour market by supporting mothers' return to work. One of the most important measures is that it is obligatory for employers to make part-time employment available for mothers returning after maternity leave. It is no longer an obligation once the child reaches the age of three, or five in the case of large families.

There are no specific regulations which would encourage a man to make use of part-time work in order to participate in childcare activities. (EC 2015, Country Report Gender Equality: Hungary, p31f)

Another important element of the new Labour Code is that parents are no longer prohibited to work while receiving family allowances once the child becomes one year old. In 2016 the age limit was lowered to six months. Before this provision it was forbidden for parents to work while receiving childcare payment, and only part-time work was permitted while receiving childcare allowance. Now the number of working hours is not limited anymore, full time employment is also possible.

A Job Protection Action Plan (2011/CLVI) was introduced in 2011 which aims to motivate employers to employ individuals who are members of the most vulnerable social groups: people over the age of 55 or under the age of 25, women with young children and the long-term unemployed (unemployed for more than 6 months). This is a financial incentive: employers are eligible for tax creditfor employing vulnerable people as defined above. During the first two years of employment the social contribution tax is 0% instead of 27% and a 14.5% reduction is available for one additional year. The base of the tax credit is maximized in the gross amount of the salary and cannot be higher than EUR 320.

The National Strategy for the Promotion of Gender Equality - 2010-2021 (1004/2010 I.21) and the 2010/11 Action Plan

The national strategy was created in accordance with the European Union's Roadmap for Gender Equality 2006-2010, and developed concrete areas of action and indicators within the Hungarian context. An action plan was prepared for 2010-11 (Government Resolution 1095/2010. IV. 21) in order to foster actions based on the strategy to be implemented by government agencies to promote gender equality. Issues such as gender pay gap, poverty, health, research and development, vertical segregation, violence against women, gender stereotypes and education were addressed in this action plan (1004/2010.I.21). It was funded partly from national sources and partly from the

Structural Funds and the programs were administered by the Hungarian Development Agency. After 2011 there has not been a subsequent action plan. Evaluations of the first action plan were not published. (Fodor 2013)

The national strategy is still is force in 2017 but no further action plans have been prepared and/or implemented since 2010, and no new developments are foreseen until the next election which is to be held in 2018.

2.1.2 Description of structures for gender equality

In the past decades the issue of gender equality was delegated to different ministries and departments within the Hungarian public administration system in accordance with the preferences of the governments in power. Between 1995 and 1998 gender equality issues were allocated to the Ministry of Labour: in 1995 the Secretary of Women Politics, from 1996 the Secretary of Equal Opportunities was responsible for equality policies. In 1998 the Ministry of Labour was restructured and continued its work as the Ministry of Social and Family Affairs, where the Women Representation Secretariat became responsible for GE issues.

At the beginning of the 2000s gender issues received more attention: in 2002 the Directorate General for Equal Opportunities at the Ministry of Employment and Labour Affairs managed he implementation of gender mainstreaming, then in 2003 its Director General was appointed Minister of Equal Opportunity. This was the only period when GE (together with other equal opportunity issues) had a really high level representation in Hungary. In 2004 the Equal Opportunity Government Agency was established. The issue of gender equality was delegated to the Department of Social Equality of Men and Women at the Ministry of Equal Opportunity.

In 2010 the new government transferred gender equal opportunity issues to the State Secretariat of Social and Family Affairs of the Ministry of Social and Labour Affairs.

In 2013 a conceptual change took place and gender equality lost its importance, with family affairs taking over its place in policy making and in the relevant institutions. It has also been suggested by the government that the idea of gender is too far from Hungarian reality, so a new concept had to be developed. In the new concept the situation of men and women is cross-related with family; consequently, an independent gender policy is not necessary anymore. Emphasis has been put on the caring roles of women and men in the family and the challenges they face as mothers and fathers, with special regard to families with small children (under age 3). Presently the Department of Women's Politics of the Ministry of Human Capacities is responsible for planning and implementing actions, also for monitoring the status of women and providing statistical data for international institutions.

Besides the ones in public administration, another important body, the Council for Gender Equality, was a significant actor of equality issues. It was established in 1999 and had a consultative role. It consisted of public administration officials, non-governmental gender representatives and experts. In 2006 it was replaced with the Council for Social Equality of Women and Men in accordance with the gender equality policies of the EC. It was heavily criticized by many women advocacy NGOs because they were not involved in the Council in a participatory way but were allowed an observer status only. Such limited involvement of NGOs and other relevant civic stakeholders resulted in the failure

of establishing a new gender regime in Hungary, even though the time and the circumstances (Hungary joined the EU) were favourable. This council stopped operating in 2010 (Ilonszki 2014). Another consultative body was established by the Hungarian government with the main roles of monitoring the enforcement of human rights in Hungary and initiating consultation with civil society organisations and other stakeholders and actors related to human rights. In this Working Group the State Secretary for Family and Youth Affairs is responsible for gender issues.

Following the adoption of the Equality Act in 2003, the Equal Treatment Authority, ETA (Egyenlő Bánásmód Hatóság, EBH) was established in 2005 as an independent administrative body dedicated to implementing the orovisions of equal treatment laws. (EC 2015, Country Report Gender Equality: Hungary)

ETA is entitled to conduct "proceedings if the principle of equal treatment might have been violated either at the request of the injured party or upon its own motion (ex officio) in cases set forth by law in order to establish whether any discrimination occurred."

2.1.3 Description of relevant policy initiatives to foster equality

The Department of Women's Politics of the Ministry of Human Capacities has the most significant role in initiating gender policies and it is responsible for combating gender-based violence.

Very few relevant policies and initiatives can be mentioned. There are two main reasons for this: as it was described in relation to the gender equality strategy, family policies replaced gender equality policies, consequently no measures, initiatives or campaigns have been developed and implemented recently, which directly target gender issues. Financal resources are also lacking, as there is no independent budget available for gender issues or for women's policies.

Most of the initiatives are planned to be implemented from EU funds in the framework of the Széchenyi 2020, Human Resource Development Operational Programme; "Women in the family and workplaces" is the topic that includes the calls aiming at improving the situation of women in Hungary. The aim of this thematic area is to help women to return to work by providing competence development, education and flexible work schedules. A further aim is to encourage women to successfully tackle the areas of work and life, where achieving work-life balance is easier, and those economic sectors, where women are underrepresented and the sector's development is in the interest of national economy (IT, engineering).

The specific aims are:

1. Development of atypical forms of employment offered to women-
2. Improvement of cooperation between employers and employees at the local level in order to achieve better work-life reconciliation.
3. Promoting atypical forms of employment such as part-time, telework, self-employment, freelancing, job sharing, new working schedule models among employers and employees.
4. Combating stereotypes against women at the local level with awareness raising campaigns.

Besides the specific calls, gender equality is a horizontal issue in each operative programme co-financed by the European Commission and Hungary.

Current societal discourses

Violence against women has been the most extensively discussed topic recently, the focus being mainly on domestic violence due to the recent changes in the legislation. Campaigns run by NGOs, several articles and spots in online and offline media, also professional workshops and conferences covered the topic in the last few years.

Work-life balance is also a popular topic in the media, as well as in the communication of public policy. In public media the reconciliation of motherhood and business life is a popular topic nowadays. Work-life balance has become an important issue in the communication of policy making related to recently introduced family and labour market initiatives, such as the extended child care payment (GYED Extra).

In the last few years, NGOs have been struggling to survive, as their financial resources have been cut. As a consequence, some important topics, of which NGOs were the main representatives and advocates, hardly get any attention anymore. The empowerment of women as a topic is almost absent in public discourse. The Friedrich Ebert Stiftung is one of the most important actors that is still trying to keep this topic on the agenda in Hungary.

Nevertheless, there are some topics which have received more spotlight recently: the issue of women and IT professions is becoming more and more popular thanks to the NGOs and activists working on this topic (Skool, Django Girls, Hungarian Association of Women in Science), also girls and STEM are a favoured topic, but this interest is 'seasonal' and js linked to special occasions, such as Girls' Day or Digital Week.

Companies are more aware of the problem of the situation of women in STEM and IT professions. More and more professional events, conferences, workshops are tackling the problem as companies realize the necessity of integrating women in these fields. The awareness of policy makers still needs to be improved.

2.1.4 General assessment of the effectiveness of existing equal opportunity / anti-discrimination legislation / measures

Table 6: Relevant laws and policy initiatives to foster equality between women and men

Equal economic independence	● Labour market participation ● Work-life-balance ● Childcare facilities	x x x
Equal pay for equal work and work of equal value	● Wage transparency ● Awareness raising of the consequences of part-time work and fixed-term contracts ● Equal pay ● Vocational orientation for non-traditional occupations	x x
Equality in decision-making	● Initiatives to improve gender balance in decision making ● Monitoring the implementation of the 25% target for women	

	in top level decision-making positions in research ● 40% of members of one sex in committees and expert groups ● Support greater participation of women in European Parliament elections, also as candidates	
Horizontal issues	● Promoting non-discriminatory gender roles in all areas of life, such as education, career choices, employment and sport ● Bodies focusing on equlity, which monitor, enforce, evaluate and update the legal framework ● Annual Report on progress on gender equality	x
Additional activities	● Gender budgeting in legislation	

Equal pay and wage transparency

Wage transparency is not ensured neither in the private sector, nor in the public sector. In the case of the former, it is quite common that wages are confidential and the employment contract stipulates that penalty shall be paid if the amount is revealed by the employee. It hinders not only transparency but filing a legal complaint against unequal pay as well.

In theory, wage transparency is ensured in the public sector by the job classification and waging system applied but in reality it is limited. The Act on Public Servants allows that “the director of the state administrative organ may increase the basic wage of the public servant by 50 %, or may reduce it by 20 %.” (EC 2015, Country Report Gender Equality: Hungary, p17) This adjustment is based on the performance evaluation of the previous year but exact specification is not available. These conditions may result in a lack of transparency regarding wages in the public sector. (EC 2015, Country Report Gender Equality: Hungary, p17) Another limitation of transparency that should be mentioned is that salaries are often funded from project budgets and are subject to individual negotiation – in these cases the wage system for public servants is not relevant.

Equality bodies who monitor, enforce, evaluate and update the legal framework

The Equality Act is the most important basis of equality in the legal framework. It was considered to be a major breakthrough, as it was the first equality legislation after the change of the political regime, and it provided a set of rules that were intended to be implemented throughout the entire legal system.

More than a decade after its enactment, the Equality Act is considered not fully successful. Its inefficiency stems from the unclear terms and definitions it uses; moreover the sanctions stipulated by the act are not dissuasive. Article XV (5) of the Fundamental Law was criticized because of its paternalistic approach: "By means of separate measures, Hungary shall protect families, children, women, the elderly and persons living with disabilities." The Equality Act was criticized for mentioning sex among the 20 legally prohibited discriminatory grounds and not as an independent dimension, having its own significance (EC 2015, Country Report Gender Equality: Hungary, p8f)

Besides this excessively wide scope, exemptions are defined with similarly excessively broad terms (Articles 7 (2)b and 22). This vague and unspecific characteristic of the act results in weak protection in practice because those accused can exculpate themselves easily. The main problem is that the possibilities for enforcing the equal treatment legislation are quite limited in Hungary. The potential sanctions that can be applied based on the Equality Act are considered as weak and inefficient. (EC 2015, Country Report Gender Equality: Hungary)

Equality programs funded by the EU

In the framework of the PROGRESS Program (2007-2013) of the EC numerous equality trainings were held for governmental institutions, municipalities, regional development agencies about how to integrate the gender aspect into their programme and project planning in public policy. As it will be discussed in the chapter on evaluation culture, programme evaluation is not part of the practice in Hungary; as a consequence, the communication and evaluation of these training programmes are lacking, even as evaluation and feedback could foster evidence-based policy making (Ilonszki 2014).

Childcare facilities

Day-care services are available for children under three years of age. The nursery system was well developed in the socialist era, given the context of the system of total employment. (At the same time, 3 yrs long childcare leave with allowance was also available for women with small children.) It was operated by the state, and a standardized pedagogical programme was applied in these institutions. Most women chose to go on childcare leave and stayed at home with the child for three years (or more, in case of more than one child).

Despite the large capacity of nurseries, the number of enrolled children peaked in 1983, when 15% of the children between the ages of 0 and 3 years attended nurseries. This proportion started decreasing in the mid-eighties and then, after the change of the political regime, the system sharply declined. (Gyarmati 2016). The financing of nurseries was shifted to the local municipalities, which resulted in institution closures because their situation was also quite uncertain. The number of nurseries decreased with 47% between 1990 and 2005 (Scharle 2013).

In 2002 a new system, the family day-care system was introduced, which led to an expansion of the day-care capacities. These family day-care facilities may be used by parents with children aged between 12 weeks and 14 years of age. As a result, the proportion of children aged between 0 and 2 attending a formal day-care institution facility from 6% in 2000 to approximately 10% in 2011.

While the capacities of day-care facilities for children aged netween 3 and 6 are almost sufficient, in the case of nurseries the demand is much greater than the supply. Moreover, there is a regional inequality in the capacities, smaller towns and villages are in the worst situation. (Scharle 2013)

Providing day-care services is not a regular practice for companies in Hungary. One of the few exceptions is the Hungarian Academy of Sciences which runs a kindergarten and day-care service for its employees.

In 2017 the government announced a programme for rendering childcare facilities more available for women. As part of the new system, every local municipality has to provide a day-care nursery for children under three, in case there are at least five children who need this kind of service. Until 2017

only towns with a population over 10 000 were obliged to provide day-care nursery. Child care services provided by employers are also going to be introduced as a new element.

2.2 Welfare and Gender Regimes

2.2.1 Fiscal policies

Since 2011 taxpayers may benefit from family tax allowance without any limit linked to their annual income. Family tax allowance can be divided between the spouses or co-habiting partners. Single parents cannot divide the annual tax allowance with the other parent. The net reduction (from payable tax) is approx. 30 EUR/month/child if a family raises 1 child, approx. 45 EUR/month/child in the case of two children, with 3 or more children the amount is approx. 100 EUR/month/child.

Table 7: Fiscal incentive for secondary workers, 2011 – (sorted by AETR)

	Secondary earner (AETR) Primary earner at 100% of AW and 2 children	Single Personal (Net Average Tax)	Ratio (Secondary earner/Single)
Hungary	29,6	29,5	1
Unweighted Average	31,3	23,7	1,4
Unweighted Average without joint taxation countries	30	23,1	1,3
Unweighted Average for joint taxation countries (FR, DE, IE, LU, PT)	37,3	26,9	1,4

Source: European Commission (2013); OECD (2013), and OECD (2011) (Plantenga 2014, p41)

The AETR ratio of Hungary is 1, which indicates that re-entering the labour market for a secondary earner has a financial rationale. The fiscal measures – maternity leave payment with a 70% ratio of income, the allowance of paid work parallel to maternity leave benefits, and the family taxation allowance – seem to be good incentives for secondary earners to participate in the labour market instead of staying home during the years of child-rearing.

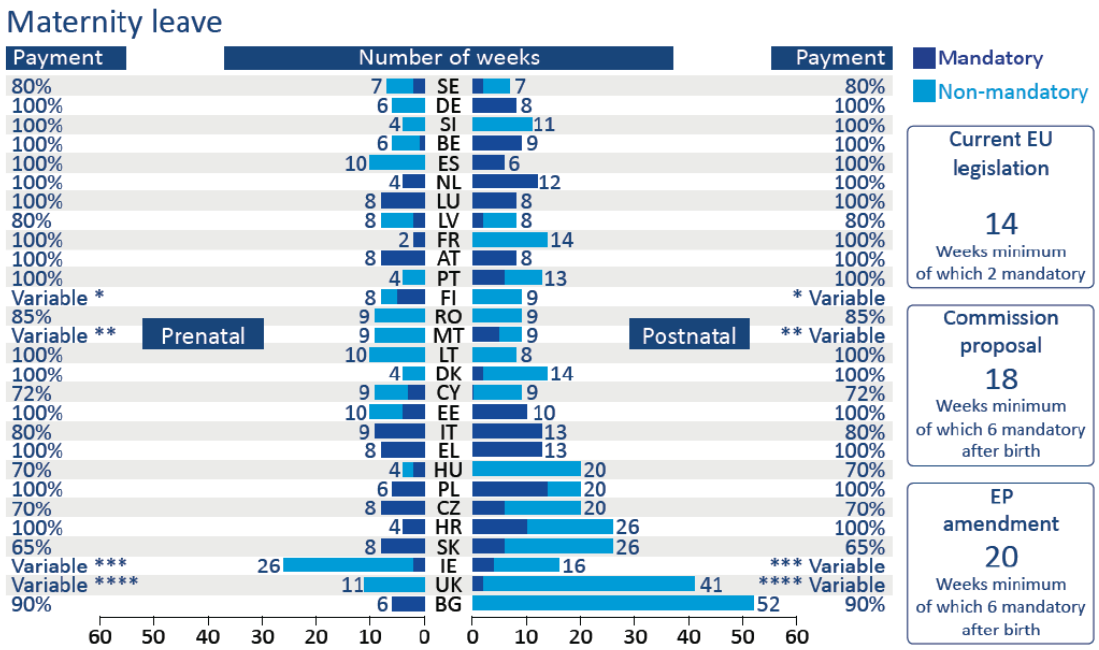
2.2.2 Parental leave policies

2.2.2.1 Possible duration of maternity leave

Mothers are entitled to twenty-four weeks of maternity leave (Article 127 (1) of the Labour Code), of which 2 weeks are mandatory. Maternity leave shall be allocated four weeks prior to the expected date of confinement, however, it can be agreed upon differently. (EC 2015, Country Report Gender Equality: Hungary, p23)

Hungary is among the group of countries, representing a minority in Europe, which provide an allowance in the amount of 70% of the income?for the period of maternity leave, while most of the EU countries offer 100%. Nevertheless, with the possibility of taking out 24 weeks, Hungary is among the most generous one-third.

Figure 8: Comparison between EU-countries



Source: FEMM Committee 2015, p.114

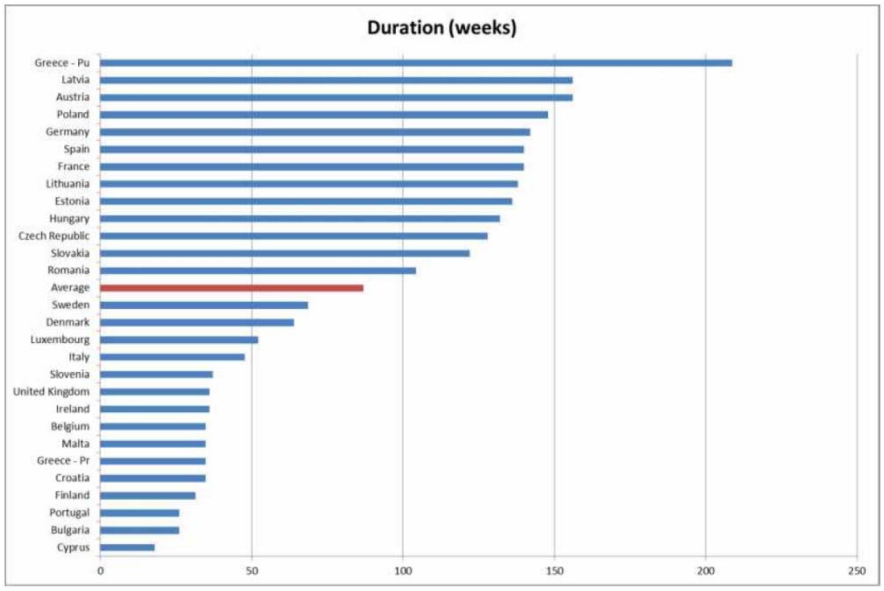
2.2.2.2 *Possibility of paternity Leave*

A father is entitled to five days of paternity leave upon the birth of a child (in case of twins 2 additional days can be taken off). The days can be requested by the father within 2 months from the date of the birth. During this period there is no special protection against dismissal. The leave is paid from the central budget. (EC 2015, Country Report Gender Equality: Hungary, p30)

2.2.2.3 *Possible duration of parental leave*

In Hungary the parental leave can be taken from the end of the maternity leave until the child is three years old, or until the age of ten in case of a child with severe illness. The length of the paternal leave is 136 weeks, which is the tenth longest among the EU countries and is well above the average number of weeks, which is 86.9. The combined maternity leave and parental leave is 3 years. (EC 2015, Country Report Gender Equality: Hungary, p27)

Figure 9: Duration of parental leave in weeks



Source: FEMM Committee 2015, p.68

2.2.2.4 Who is entitled to take parental leave?

Both parents are entitled to take parental leave but only one of them is entitled to social security benefits. If both parents take parental leave, only the mother is protected against dismissal during the leave (EC 2015, Country Report Gender Equality: Hungary, p27). The proportion of fathers taking parental leave is less than 5%.

2.2.2.5 Flexibility of Parental Leave arrangements

Parents receiving childcare payment (GYED) can work unlimited hours once the child becomes six months old; they continue to receive full benefit until the child reaches the age of 2 and they are also eligible to enrol the child in public childcare facilities. (Korintus and Gábos 2016, p3)

2.2.2.6 Policies in place for supporting paternity leave or usage of entitlements by fathers

There are no specific policies in place for supporting paternity leave.

2.2.2.7 Regulations and initiatives supporting parents returning to work

The new Hungarian Labour Code regulates the conditions of return after parental leave. The new Hungarian Labour Code aims to make the labour-market more flexible, consequently some protective elements were eliminated.

As the Country Report Gender Equality: Hungary pointed out, the new Code of Labour does not guarantee the right to return to the original job anymore after maternity or parental leave in a direct way. Nevertheless, a "cumulative interpretation of the following regulations leads to the conclusion that such a right is ensured by the Hungarian labour regulations:

1) taking maternity/parental leave does not terminate the employment relationship, therefore the employment contract remains in force during the leave (Sections 127, 128 and 130);

2) the employee has to inform the employer at least 30 days in advance of the intention to return to work (Section 133 (2));
3) it is an obligatory content of the employment contract to specify the job of the employee (Section 45(1));
4) the employment contract may only be modified with the mutual consent of the parties (Section 58);
5) a dismissal is prohibited during maternity/parental leave (Section 65 (3) b and c)."

According to a cumulative interpretation of these sections, the employee has the right to return to work with the same employer and in the absence of a mutually agreed modification of the employment contract, the employee has the right to return to his/her original job. Nonetheless, the lack of an expressis verbis obligation to employ the employee in the original job obviously expands the employer's room for manoeuvre, which might lead to situations where the parent is unable to return to the original job. It is openly discussed in labour law seminars and conferences that as maternity/parental leave usually lasts for years (two or three years per child), in the extremely rapidly changing economic and market environment employers could not be expected to re-employ the returning parent in the same job. Anecdotal evidence suggests that many women are unable to return to their original employment at the end of their maternity leave. Usually the employer offers a termination by mutual consent and pays equal to, or slightly above the amount which would be due in the case of a dismissal with notice. If the employer dismisses the parent unlawfully, the employee may claim his/her reinstatement in his/her original job, according to Article 83 (1)b of the Labour Code." (EC 2015, Country Report Gender Equality: Hungary, p24f)

2.2.2.8 Compensation rate for wages[2] for maternity leave

Hungary is among those member states that provide the lowest compensation rate of previous income during maternity leave. (FEMM Committee 2015, p36) The name of the benefit is infant care allowance (abbreviated CSED) and is provided for 24 weeks after giving birth. The compensation rate is 70% of average daily earnings without an upper limit, which is the same level as sick leave.

It is not against the law to supplement maternity benefits by the employer but data is not available whether it is an existing practice or not. (Korintus and Gábos 2016, p1)

2.2.2.9 Compensation rate for wages[3] for parental leave

After maternity leave childcare payment (GYED) is provided for those who meet the criterion of having been employed for 365 days in the preceding 2 years. Parents receive this allowance until the child reaches the age of two or until the age of three in the case of twins. The compensation rate of GYED is 70% of the previous salary, but a ceiling is applicable, which was EUR 494 per month in 2016. (Korintus and Gábos 2016, p3) This amount increased by 43% from 2010 to 2015.

Childcare allowance (GYES) is a fix-amount benefit equal to the amount of the minimum old-age pension (EUR 90.4 per month in 2016). GYES is a normative financial support, each family is eligible

[2] *% of wages covered by leave benefits during leave period*
[3] *% of wages covered by leave benefits during leave period*

to it until the child reaches the age of three, and it is not a subject to previous employment. The amount is multiplied by the number of children. (Korintus and Gábos 2016, p3)

2.2.2.10 Additional paid leave for working parents?

The number of additional days that may be used as paid leave by parents is defined in Article 118 § (1) of the Labour Code. Parents with one child are entitled to 2, those with 2 children to 4, while those with 3 or more children to 7 additional days. Those parents who raise a child with special needs are entitled to 2 additional paid days off.

As of 1 January 2012, additional paid days off cannot be shared among the parents. Prior to this the parents had to share the paid leave, now they can use the paid leave individually. Divorced parents are also entitled to additional days off, regardless of who is the main carer of the child and whether the child lives in her or his household. This is great help for families, as more paid days off are available for the parents to take care of a sick child.

Employees are entitled to time away from work on the grounds of force majeure related to urgent family reasons. “Short-term leave is also granted for the period of receiving IVF treatment in a healthcare institution, for the duration of mandatory pregnancy-related medical examinations, and for nursing the child until the end of the ninth month for one or two hours daily (in the case of one child and twins)”. (EC 2015, Country Report Gender Equality: Hungary, p30f)

2.2.2.11 Legal right to reduce working time on request

Employees returning from parental leave are entitled to requesting the modification of their full time contract to part-time until the child’s third birthday; it is an obligation for the employer to amend the contract accordingly. (Article 61(3) of the Labour Code). This is considered to be reduced working time, however, the income that the employee thus receives, combined with the childcare benefit is usually still less than a full-time salary. (EC 2015, Country Report Gender Equality: Hungary, p31f)

2.2.2.12 Protection against dismissal

Dismissal with notice is prohibited during pregnancy, maternity leave and parental leave (Article 65 (3) a – c) with the exception of executives, who do enjoy protection during pregnancy and maternity leave but not during parental leave (Article 209 (1) (2) b).

Dismissal with immediate effect can be applied under specific circumstances at any time of the employment, including during pregnancy, paternity leave, and at the time of return to work after paternity leave before the child reaches the age of three (Article 78). The reason of dismissal should be serious and it is specified in the law.

If the mother or the single father returns to work before the child reaches the age of three, a restriction on dismissal is applicable, which means that if the dismissal is in relation with the capabilities of the employee or the capacities of the employer, “the employee can only be dismissed if there is no vacancy at the employer’s premises where (s)he was employed before, which corresponds to the capabilities, practice and qualification used by the employee in his/her current

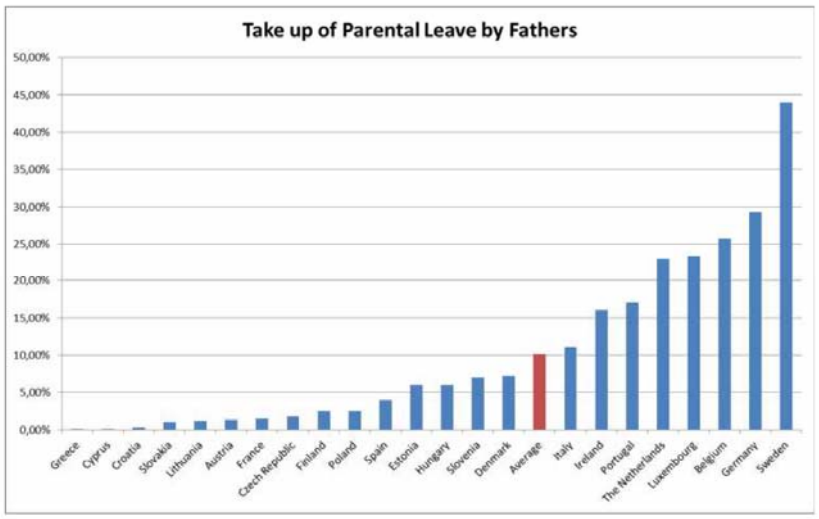
job". At the same time, there is no restriction for dismissal with immediate effect. (EC 2015, Country Report Gender Equality: Hungary, p21f)

2.2.3 Empirical Evidence for Gender Regime

2.2.3.1 Usage of parental leave

Figure 10: Take-up of parental leave by fathers in 23 Member States in percentages of the available leave

Figure 23: Take-up of parental leave by fathers in 23 Member States in percentages of the available leave[88]



[88] Because of incomparable statistics, United Kingdom could not be included. Additionally, in the case of three countries, the statistics were not specific, which resulted in calculating the average for those three countries. The take up for Austria is between 0.6% and 2%, for France between 1% and 2%, and for Finland between 2% and

Source: (FEMM Committee 2015, p.73)

Take-up of parental leave by fathers is low in Hungary, slightly higher than 5%. According to studies, people maintain traditional values about gender roles in the family, which is the main reason behind this data. Nevertheless, some studies suggest that younger generations are open to the idea of involving fathers in child care. (Blaskó 2011)

Table 8: Proportion (%) of employed mothers with a child under age 1 on maternity or parental leave

	All	Proportion on leave One child	Two or more children
Hungary	86,45		

Source: http://www.oecd.org/els/family/database.htm#labour_market PF2.2.A

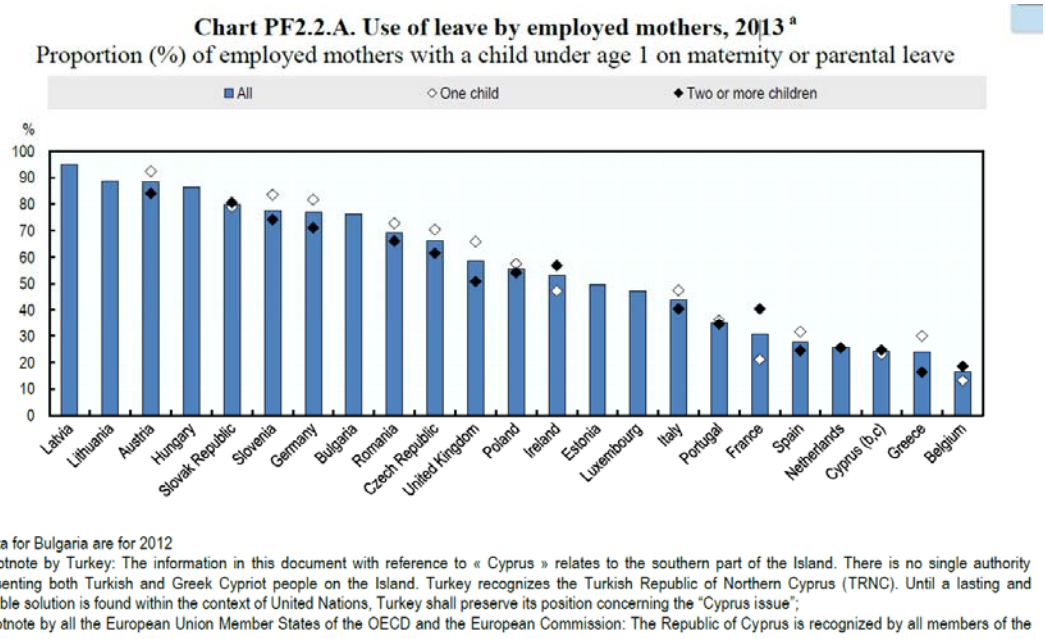
In Hungary more than three quarters of all employed mothers with at least one child under the age of one are on leave: the rate is 86%. (OECD Family Database 2016, P2)
Fathers are entitled to be on leave for 5 days as paternity leave. Only one in four fathers took this opportunity in 2013, nevertheless, and only 1 in 5 did in 2006.

Table 9: Recipients/users of publicly-administered paternity leave benefits or publicly-administered paid paternity leave per 100 live births, 2006 and 2013

	Recipients per 100 live births	
	2006	2013
Hungary	21,9	25,1

Source: http://www.oecd.org/els/family/database.htm#labour_market PF2.2.B

Figure 11: Use of leave by employed mothers, 2013



a) Data for Bulgaria are for 2012
b) Footnote by Turkey: The information in this document with reference to « Cyprus » relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognizes the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of United Nations, Turkey shall preserve its position concerning the "Cyprus issue";
c) Footnote by all the European Union Member States of the OECD and the European Commission: The Republic of Cyprus is recognized by all members of the

Source: http://www.oecd.org/els/family/PF2-2-Use-childbirth-leave.pdf

2.2.3.2 Average duration of parental leave periods by sex (measured in days);

No such data is available.

2.2.3.3 What are the main barriers for increasing the participation of men in parental leave?

The majority of people in Hungary support the traditional structure of a family with traditional roles and any form of deviation is unacceptable. It is a popular topic in magazines to publish interviews with fathers who are considered "weird" for being on parental leave. The pay gap steps in as the second reason – many families cannot afford to have a stay-at-home father.

2.2.3.4 Fertility rate

The postponement of childbearing is not a new phenomenon in Hungary: it had already started before the political regime change (Husz 2006). In 1990 the mean age of women at the birth of their first child was 23 years. From the mid-nineties until 2010 there was a steady increase in the age until which childbirth was put off, then the birth postponement stopped at the age 28, which is around the EU average. (Kapitány-Spéder 2015).

Table 10: Fertility rate, total (births per woman)

	2006	2007	2008	2009	2010	2011	2012	2013	2014
EU28	1,53	1,56	1,61	1,60	1,61	1,58	1,58	1,54	1,54
Hungary	1,34	1,32	1,35	1,32	1,25	1,23	1,34	1,35	1,35

Source: Worldbank
http://data.worldbank.org/indicator/SP.DYN.TFRT.IN?end=2014&locations=AT&start=2005

2.2.3.5 Mean age of women at birth of first child

Table 11: Mean Age of Women at Birth of First Child by Country and Year

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Hungary	27	27,3	27,6	27,7	27,9	28,2	28,3	28,3	28,2

Source: UNECE Statistical Database: http://w3.unece.org/PXWeb2015/pxweb/en/STAT/STAT__30-GE__02-Families_households/04_en_GEFHAge1stChild_r.px/?rxid=d666e163-3739-46fb-b1c0-badf85132762

2.2.3.6 One-parent families and children by sex of parent

The majority of the one-parent households is run by mothers: 87.5% in 2005 and 86.6% in 2011 of single parents were female. In case of a divorce it is highly unlikely that the custody will be given to the father.

Table 12: One-parent households

	2005	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Female Parent									
Hungary	87,5						86,6		
Male Parent									
Hungary	12,5						13,4		

Source: UNECE Statistical Database: http://w3.unece.org/PXWeb2015/pxweb/en/STAT/STAT__30-GE__02-Families_households/07_en_GEFHOneParFam_r.px/?rxid=d666e163-3739-46fb-b1c0-badf85132762

2.2.3.7 Enrolment rate of children aged under 3 years in childcare facilities

In Hungary, the primary facilities of institutional childcare for children younger than three years old are the nurseries operated by local governments. Children may be admitted to a nursery from the age of 20 weeks onwards but in practice very few parents enrol their child before he or she is at least one year old, and in most cases not until after the child's second birthday. This is because paid parental child care leave makes it possible for the majority of mothers to care for their child at home for two or three years before returning to work. The majority of Hungarian families consider it to be much more desirable for the mother to stay at home than to enrol the child in a nursery. As a consequence, only around 9% of children under the age of three are in nursery childcare. It is also a common practice in Hungary that nurseries do not accept a child if the mother is staying at home with a younger child and is receiving child care benefits.

Table 13: Child care by Indicator, Country and Year

	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Austria	10	11	12	14	16	17	20	21
Denmark	62	63	66	66	65	67	66	67
France								
Germany	14	16	18	20	23	25	28	29
Hungary	6,8	7	7,9	12	12,8	13,9	15,2	16,3
Spain	47	49	50	47	47			
Sweden	48	48	49	50	50	49	51	51

Source: UNECE Statistical Database: http://w3.unece.org/PXWeb2015/pxweb/en/STAT/STAT__30-GE__98-GE_LifeBalance/0104_en_GELB_Child_CARE_r.px/?rxid=c435b0ec-2113-4c07-8b14-9960f8e370b4

Until recently for nursery child care was free of charge, parents only had to cover the cost of the child's meals. Now a fee is set by the operator of the nursery, so there may be great differences between the fees charged by different institutions. In certain places, the local government continues to provide childcare free of charge.

2.2.3.8 Women not working or working part time because of inadequacy of childcare services

Table 14: Impact of the inadequacy of childcare services as a reason for women (aged 15-64 and with children up to the mandatory school age) not working or working part time

	Children younger than 3		Children between 3 and the MSA	
	Absolute value: adequate childcare services are not available or affordable	Relative value: % of mothers who do not work or work part-time	Absolute value: adequate childcare services are not available or affordable	Relative value: % of mothers who do not work or work part time
EU27	1.982.543	23	1.441.445	18
Hungary	58.230	22	18092	15

Source: EC Barcelona Objectives (p34)

2.2.3.9 Main reasons for women not working or working part time

Part-time work is not widespread in Hungary; its share is around only 5-6%. The reeasons behind it are multifaceted. One of the main obstacles to this atypical employment form is that because of the present tax and social insurance system it is not profitable for employers to employ part-time workers (Bankó 2014). The labour market is not flexible in this sense; however, some progress can be seen due to the new regulations. The limited availability and the insufficient quality of child care services are still important obstacles. We can assume that the perceived insufficient quality correlates with the presumption that "full care provided entirely by the mother is the best for a child under the age 3" and is not due only to the objective problems of the day-care system. Availability is

limited, particularly in rural areas. Addressing this problem, the Hungarian government launched a new program in 2017 to increase the number of childcare facilities.

Table 15: Main reasons for women (aged 15-64 and with children up to mandatory school age) not working or working part time by perceived shortcomings of childcare

	Not available	too expensive	insufficient quality
EU 27	25	53	4
Hungary	32	25	20

Source: EC: Barcelona Objectives (p35)

2.2.3.10 Percentage of children in formal child care, 2012

As it was discussed before, the enrolment rate of children under the age 3 in formal child care is quite low in Hungary. However, the majority of children were enrolled in formal child care between age 3 and the compulsory school age. This data, however, is not relevant anymore, as since 2015 attending kindergarten has obligatory for children between age 3 and the compulsory school age.

Table 16: Percentage of children in formal child care, 2012

	below age 3			between age 3 and compulsory schooling age		
	1-29 hours	30 hours +	total	1-29 hours	30 hours +	total
EU28	15	15	30	37	46	83
Hungary	1	7	8	16	59	75

Source: Eurostat: EU-SILC; Plantenga 2014, p.44

2.2.3.11 Time spent on unpaid work

Table 17: Time spent on unpaid, paid and total work, by sex

	paid work		unpaid work		
	Women	Men	Women	Men	
OECD Average	215,3	328,5	271,7	137,6	
Hungary	232	327,2	268,1	127,1	1999-00

Source: http://www.oecd.org/gender/data/time-spent-in-unpaid-paid-and-total-work-by-sex.htm

As it was discussed before, most of the people maintain traditional values related to roles in the family. In accordance with this it is usually the women who are responsible for the household duties and for caring for children and relatives. Women in Hungary spend significantly more time with unpaid work (268.1 hours) than with paid work (232 hours), while men spend almost 3 times fewer hours with unpaid work (127.1 hours) than with paid work (327 hours). Comparing men and women, the time spent with unpaid work is double in the case of women. The value does not differ significantly from the OECD average.

2.2.4 General assessment of the Gender Regime

The idea that the equal distribution of family responsibilities is the key to combating gender discrimination is still not widely accepted either by the general public or by the legislator. The prevailing societal norms that women are responsible for family matters (strengthened also by the ruling political forces) are contrary to the idea of women's balanced participation and men in family and working life. The regulations allowing a generous parental leave and the attitudes towards caring for children mutually reinforce each other in Hungary, which hinders women's equal participation in many aspects of life. Current governmental policies and initiatives emphasize women's caring roles in both the family and society instead of encouraging them to participate in all areas of life (EC 2015, Country Report Gender Equality: Hungary, p50). The traditionally conservative attitude of Hungarian women is a good basis for decision-makers not to integrate the gender equality perspective into the legislative processes, moreover, to deny the importance of gender mainstreaming as a phenomenon and strategic direction. Currently gender equality is not an independent issue in public policies and it is allocated under policies targeting family support.

Hungary has not adopted measures that aim to improve gender balance in company boards, political and other decision-making bodies. There were attempts to establish a quota system for political elections but the proposal was rejected by the political parties. However, there is real necessity for such measures as women's participation in elected bodies is extremely low in Hungary (lower than 10%). (Ilonszki 2014) The small number of women in leading positions in decision-making bodies in politics, the academia and executive boards in business shows that equality should still be an important goal in policy making.

The labour market is not flexible in Hungary in terms of flexible work pattern, telework, job-sharing, and other innovative ways of employment, even part-time work opportunities are relatively rare. The lack of the opportunity for flexible working arrangements is a significant barrier to maintaining work-life balance.

As the development and implementation of equal opportunity strategies or plans is not an obligation for employers, and also because national policies do not address equality issues, therefore any effort to ensure gender equality is dependent on decision-makers at the organisational level and is greatly affected by the local working and organisational culture of the company or organisation. As it was highlighted by the workshop participants, traditional values regarding the societal roles of women and men are still widely supported by leaders and co-workers at the workplaces. Furthermore, as flexible working hours and patterns are not available at most of the workplaces, it is subject to the individual decision of the managers if an employee can get "home office" days when it is necessary (for example when a child is sick).

Another important issue that was raised by a trade union representative at the workshop and is also featured in newspaper articles is that the low level of legal awareness that can be perceived among employees – and often even among employers – is a major barrier to tackling the gender bias.

Evidence-based decision-making and, in relation to this, the collection and publication of gender-based statistics need to be strengthened because in the absence of facts, fallacy of composition can occur among policy makers ("a lot of women work here and there is no gender bias at our department, consequently this is true for the whole labour market").

2.3 Gender equality policies in RTDI (Current developments)

2.3.1 Description of overall strategic gender equality policies in RTDI in place

Using the Innovation Union self-assessment tool the following main weaknesses of the Hungarian RTDI system could be identified (among others):

- "A low share of women in senior researcher and management positions in research and higher education organisations" (RIO country report: Hungary, 2014, p47f)

The same problem was also underlined by the ERA Progress Report 2016:

- "The country shows the most room for improvement in the share of women in senior level positions within the higher education system (i.e. Grade A positions and heads of higher education institutions)" (ERA 2016 Hungary, p5)

A strategy for the promotion of gender equality was developed in 2009: The National Strategy for the Promotion of Gender Equality – Guidelines and Objectives 2010-2021 **is** in accordance with the European Union's Roadmap for Gender Equality 2006-2010**.** The Strategy and its first Action Plan (2010-2011) was adopted by the Hungarian government in 2010. It is a long-term development concept with the following objectives:

- To accomplish equal economic independence of women and men, to close the employment and pay gaps;
- To facilitate the reconciliation of professional, private and family life;
- To facilitate the correction of the imbalance between women and men in political and economic decision-making and in the sciences.

The strategy is still is in force but no further action plans have been prepared and/or implemented since 2010, and new developments are not foreseen until the next governmental election to be held in 2018.

The Hungarian government does not apply quotas to ensure a representative gender balance in any sector. However, under the National Strategy for the Promotion of Gender Equality – Guidelines and Objectives (2010-2021), the proportion of women in leading positions in both the public and private sectors should increase by one third by the end of the period, by making equal opportunities plans more pronounced. (Deloitte Researchers´ Report 2014, p7f)

Hungary has not set up specific gender provisions or actions in the field of public research. However, the National Strategy for the Promotion of Gender Equality – Guidelines and Objectives 2010-2021 aims to increase the proportion of women in leading positions by one third in both the public and private sectors by the end of the period. (ERA Facts & Figures 2014 Hungary, p347)

2.3.2 Main challenges concerning GE in RTDI

- Focusing on issues related to gender equality and gender mainstreaming in research by the government and making gender equality an independent issue in public policies
- Raising the interest of girls in scientific and technological careers, thus ensuring a higher number of female STEM graduates

- Achieving balanced gender representation in boards, committees, recruitment bodies
- Raising the awareness of employers (in GOV, HES and BES) of the importance of gender issues
- Creating workplace environments that ensure equal opportunities
- Making gender-disaggregated data collection compulsory in RTDI organisations

2.3.3 Policy measures promoting gender equality in RTDI

2.3.3.1 Measures addressing GE in scientific careers

One of the long-term objectives of the Hungarian Academy of Sciences (HAS) is to create a platform and work environment which allow women and men with children to work without stress and carry out creative research. http://ec.europa.eu/euraxess/index.cfm/services/researchPolicies - links_policiesRecognising the small proportion of women in academic positions, in 2009 the HAS introduced a framework programme for equal opportunities with the aim to improve the work-life balance of researchers by helping women with children and reconciling research and childcare responsibilities, then continue their career. Starting from 2012 female researchers with children under 10 are granted two extra years when they apply for grants, i.e. they are allowed to submit their applications even if they are beyond the age limit (by maximum two. The institutions directly involved are the 15 research institutes that are part of HAS, as well as the 89 research groups co-financed by HAS and the universities. (Deloitte Researchers´ Report Hungary 2014, p8)

A similar measure was introduced by the Hungarian Scientific Research Fund (OTKA) in 2011. In 2017 – after the integration of OTKA into the NRDI Office – the extension of the age limit became valid also for the time after receiving the PhD degree and in case of the publications. The measure targets both female and male scientists.

Also, the impact of EU policies and expectations regarding balanced gender representation could be identified in the various operational programmes funded through the Structural Funds, which contain specific provisions in the calls. This means that at least one third (30%) of the management positions and project participants should be given to the under-represented sex. Some measures in these programmes include provisions that promote gender balance, like promoting women's entrepreneurship, decreasing the employment discrimination of women with small children, supporting family-friendly workplaces and part-time employment, decreasing the pay-gap. Program monitoring and evaluation will ensure the implementation of these measures.

The Economic Development Operational Programme (GINOP) aims to create workplace environments that ensure equal opportunities for efficient work for female employees or employees who return to the labour market after a period of receiving child care payment (GYED) or child care allowance (GYES), and help integrate these groups into the labour market. (ERA Hungary 2014, p348)

Most Hungarian universities have developed general and non-exhaustive equality plans; however, gender equality is not the main focus of these documents. Some universities have more developed plans, such as the Budapest University of Technology and Economics and the Óbuda University. They organise information sessions on engineering and informatics for high school girls with the aim of increasing the number of female students and encouraging them to study in the departments that are dominated by men.

There is a dedicated civil society organisation, the Association of Hungarian Women in Science (Nők a Tudományban Egyesület, www.nokatud.hu), which promotes and supports the career development of female scientists through awareness raising events and various services. (RIO country report Hungary 2015, p70) https://rio.jrc.ec.europa.eu/en/country-analysis

In Hungary there are some awards, fellowships and/or other similar mechanisms to specifically support female researchers. The L'Oreal-UNESCO Hungarian Grant for Women and Science provides financial support to female scientists in the field of natural sciences. The amount of the financial allocation is EUR 11,000 per year. The Association of Hungarian Women in Science established the Women in Science Excellence Award in 2013. Nominations for the award are open to young (under 40) Hungarian women who have already achieved significant results in their area of scientific activity and who take part actively in popularizing scientific and technical careers for young women. The aim of the award is to direct the public's attention to the work of outstanding women in the spirit of equal opportunities and to show good role models for the next generation. HAS cooperates with the Association in the evaluation of nominations. (ERA Facts & Figures Hungary 2014, p349)

2.3.3.2 Measures addressing gender balance in decision making

The Hungarian government does not apply quotas to ensure a representative gender balance in any sector. However, under the National Strategy for the Promotion of Gender Equality – Guidelines and Objectives (2010-2021), the proportion of women in leading positions in both the public and private sectors should be increased by one third by the end of the period, by making equal opportunities plans more pronounced. (Deloitte Researchers´ Report Hungary 2014, p8)

Within the ERA-compliant cluster in Hungary, the share of gender-balanced recruitment committees for leading researchers in research-performing organisations is lower than within the EU ERA-compliant cluster. The share of gender-balanced research evaluation panels amongst responding research funding organisations in Hungary is higher than the EU average. (ERA 2014 Hungary p.349)

2.3.3.3 Measures addressing the integration of gender dimension in research

National Innovation Office – Woman in Science Association Cooperation Agreement (ongoing): The Ministry of National Economy and the National Innovation Office held a roundtable discussion on the topic of women in science at the beginning of 2014. As a result of this event a cooperation agreement was signed by the National Innovation Office and the Association of Hungarian Woman in Science. The agreement stipulates that the parties will cooperate in examining the gender dimension of science and research. (Deloitte Researchers´ Report Hungary 2014, p7) http://ec.europa.eu/euraxess/index.cfm/services/researchPolicies - links_policies

In 2014 the research funders in Hungary who responded to the ERA survey did not indicate support for the inclusion of gender dimension in research content/programmes. Hungary has not dedicated any budget or programmes to women/gender studies. Within the ERA-compliant cluster in Hungary, the share of research-performing organisations that include the gender dimension in research content was lower than within the EU ERA-compliant cluster (ERA 2014 Hungary p 349). At the same time, the 2016 ERA Progress Report country snapshot reported positive performance in the inclusion of a gender dimension in research content, leading the EU-28 average by 57 % (ERA 2016 Hungary).

2.3.3.4 Other measures

In 2017 the president of the Hungarian Academy of Sciences established the committee "Women in the Research Career Track", the task of which is to increase the number of women among academicians, doctors of HAS and postdocs, and to raise the interest of girls in mathematics, physics and other scientific disciplines.

2.3.4 Actors responsible for GE in RTDI

The RIO country report mentions only the Hungarian Academy of Sciences (HAS) and the Association of Hungarian Women in Science as active players in gender equality in RTDI (RIO Country report 2015: Hungary, p70).

2.3.5 Assessment of Gender Equality Policies in RTDI

Some steps have been taken towards the development of Gender Equality Policy but these are sporadically and at the organisational level. There is no policy targeting this issue at the national level.

Participants of the national workshop underlined that the database of the CSO offer limited opportunities either for the in-depth analysis of the either the extremely fast changes of the scientific and working environment or the international challenges.

They also declared that the evidence-based decision making process requires more gender statistics and qualitative research in this field. Although relevant data is available, gender statistics are not published systematically and very few datasets and analyses are available publicly. This is an important factor that hinders the development of gender equality policies.

Civil society organisations have had an important role regarding the promotion of institutional changes in research and scientific institutions, such as removing gender equality barriers, nominating/electing more women among leaders and in the public bodies. The serious underminding of the financial position of the above-mentioned civil society organisations and trade unions had damaging effects on their lobby work for the better representation and more efficient decision making position of women in RTDI.

3. Gender equality in RTDI

3.1 Gender Equality in RTDI on organizational level

3.1.1 Proportion of RPOs that have adopted gender equality plans

Table 18: Proportion of RPOs that have adopted gender equality plans, 2013

	2013
EU 28	36
Hungary	50

SHE Figures 2015, p.116 (data only for 2013) (based on ERA Survey 2014)[4]

The development of an equality plan has been an obligation since 2004 for governmental and public institutions that employ more than 50 employees, and those companies in which the government or a municipality has more than 50% ownership. We can presume that the gender equality plans mentioned in the ERA surveys refer to equality plans where only one of the several target groups is women. In this sense half of the RPOs have adopted equality plans - including also gender equality -, which is significantly higher than the EU average. The Equal Treatment Authority conducted a research on equality plans in 2011; according to this study the main motivation behind adopting such a plan in the case of the public sector entities was the legal obligation. In the private sector the expectations of the international management are also an important factor in the case of companies with a multinational ownership. EU-conform specifications of calls and requirements for grants have put RPOs under pressure recently to create a gender equality plan (EBH 2013).

3.1.2 Proportion of R&D personnel working in RPOs that have adopted gender equality plans

Table 19: Proportion of research & development personnel working in RPOs who adopted gender equality plans, 2013

	2013
EU 28	70
Hungary	39

SHE Figures 2015, p.117 (data only for 2013) (based on ERA Survey 2014)

Despite the relatively high proportion of RPOs adopting a gender equality plan, 61% of the research personnel work at an RPO without such a plan. This contradiction may stem from the size of the different research units that completed the questionnaires – RPOs with a staff of more than 50 have the obligation to develop an equality plan and we do not have information on how these units had actually interpreted the question.

To sum up, gender equality seems to be increasing at the organizational level in Hungary, as the proportion of RPOs adopting gender equality plans is relatively high - but these data should be interpreted with caution. Firstly, the definition of RPO seems to be problematic in many ways (see the ERATO report), which raises the question of trustworthiness of the data. Secondly, although it is an obligation to have an equal opportunity plan, it seems that monitoring its implementation is not a practice; furthermore, non-compliance with the requirement is not sanctioned. Consequently, all these plans tend to remain at a rhetorical level only, as the implementation depends on organisations' own will, rather than on the regulation.

[4] https://ec.europa.eu/research/swafs/pdf/pub_gender_equality/she_figures_2015-final.pdf

3.2 Participation of women in tertiary education

3.2.1 Share of tertiary educated population among the group of 25 to 34 years old by sex

Women have been allowed to participate in higher education since the end of the 19th century, but even at the beginning of the 20th century women were only allowed to study in the departments of philology, medicine and pharmacology, and only after the second WW were women permitted to enrol in all higher education faculties. Women were encouraged to take on the same roles as men after WWII and during the socialist era. As a consequence, by the mid-60s their share among tertiary education students reached 40% and in the 80s it exceeded 50%. In 1990 half of the women studying in higher education graduated as teachers. Health, pedagogy and nursery have been the most gender segregated fields of study dominated by women. (Pörzse 2011)

In general, the share of tertiary educated population in Hungary was well below the EU average in the 90s but, in accordance with the EU provisions, tertiary education was heavily promoted by the state. Thanks to what has been called "the expansion of higher education" the proportion of tertiary educated population started to increase; in the age group 25-34 it increased from 19.6% to 32.1% between 2005 and 2015. There are gender differences: the share of tertiary educated females increased at a faster rate, from 22.7% to 38.4%, while the corresponding values are 16.5% and 26.1% in the case of men.

Table 20: Share of tertiary educated population among the group of 25 to 34 years old by sex*

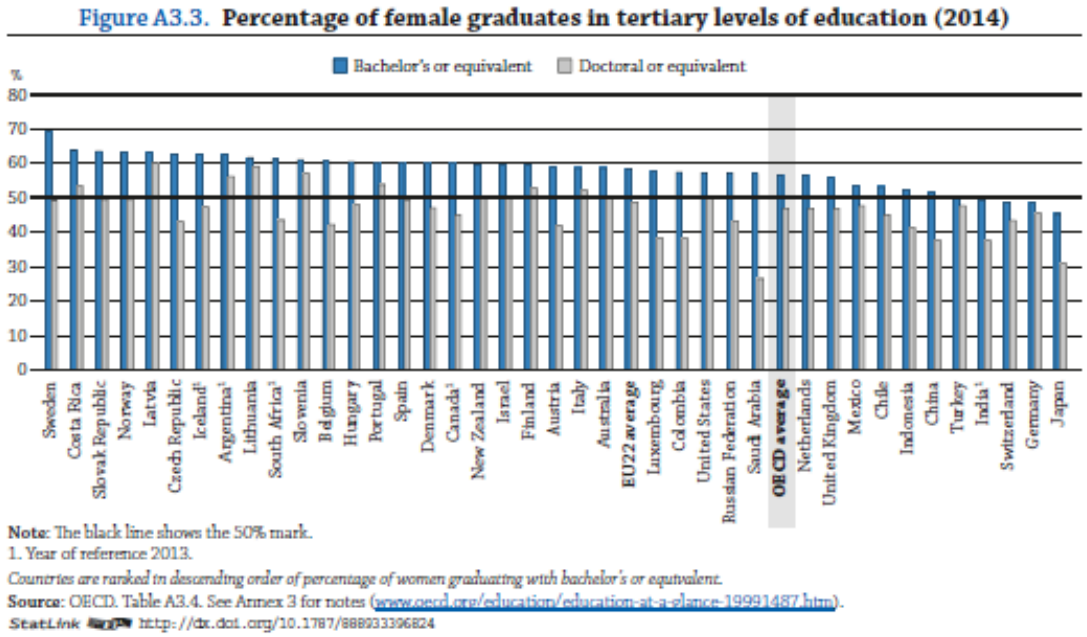
GEO	SEX/TIME	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
EU28	Total	28,3	29,2	29,9	30,9	32,3	33,3	34,4	35,5	36,5	37,2	37,9
	Males	25,4	25,9	26,4	27,2	28,2	29,1	30,0	30,8	31,7	32,5	32,9
	Females	31,1	32,5	33,6	34,8	36,4	37,6	38,8	40,2	41,3	42,0	42,9
Hungary	Total	19,6	20,7	22,0	24,1	25,1	26,1	28,2	30,5	31,2	32,1	32,1
	Males	16,5	17,0	17,7	19,9	20,6	21,4	22,9	24,7	25,3	26,1	26,1
	Females	22,7	24,6	26,4	28,4	29,7	30,9	33,6	36,5	37,3	38,3	38,4

* Introduction of the ISCED 2011 classification: data up to 2013 are based on ISCED 1997, as from 2014 ISCED 2011 is applied. Online tables present data for three aggregates (see 3.2 above), and at this level of aggregation data are directly comparable for all available countries **except Austria**. The level shift break in Austria is due to the reclassification of a programme spanning levels: the qualification acquired upon successful completion of higher technical and vocational colleges is allocated in ISCED 2011 to ISCED level 5; under ISCED 1997 the same qualification was reported on ISCED level 4, but earmarked as equivalent to tertiary education.

Source: Eurostat, Population by educational attainment level, sex and age (%)[edat_lfse_03]

In 2014 the proportion of women among first-time graduates from tertiary education was similar to the OECD average, 57% in the case of Bachelor or equivalent degrees. At doctoral level the share of women was also almost equal to the OECD average, slightly below 50%; there is approximately a 10% difference between the two levels.

Figure 12: Percentage of female graduates in tertiary levels of education (2014)



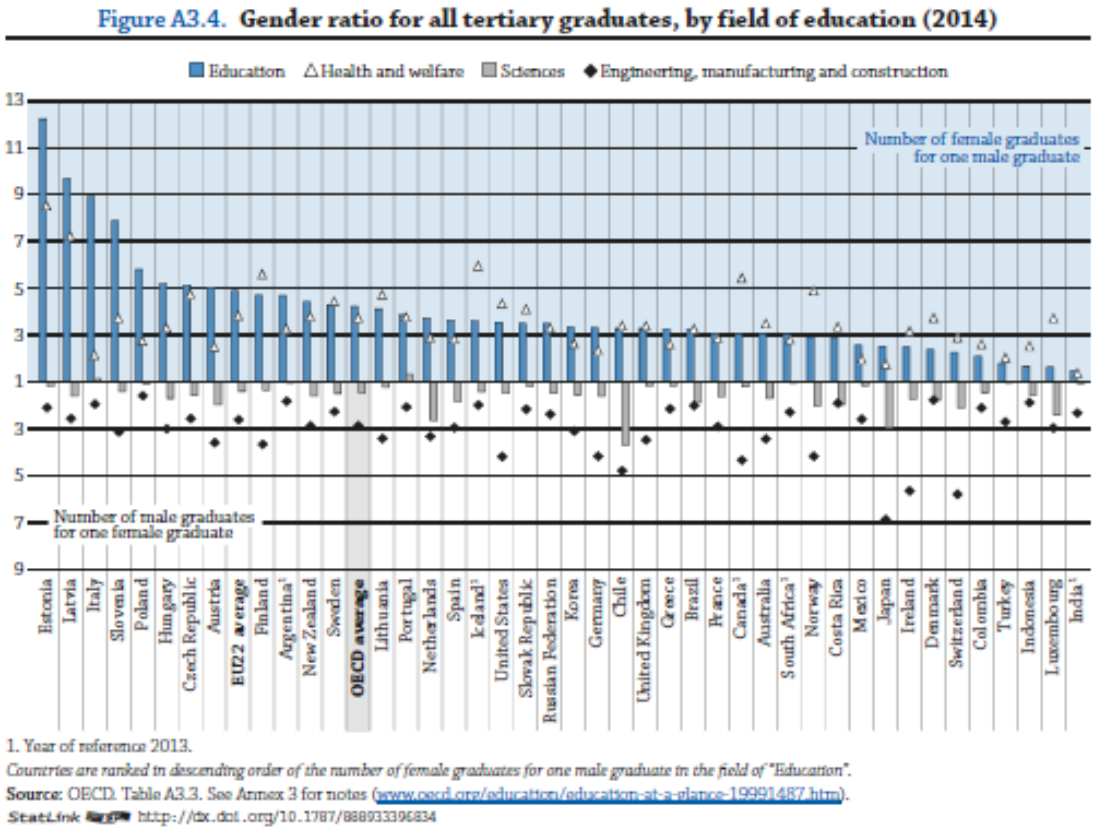
Source: Education at a Glance 2016, p64

The higher the education level and scientific degree, the smaller the share of women. Among undergraduate students the proportion of women is more than 55% in bachelor or equivalent studies. In the case of master studies, women outnumber men by more than 20% but beyond this level their share starts to decline: while 47% of PhD graduates are women, a significant number of them give up their scientific career, as in 2010 only 1 in 5 of the candidates of sciences[5] was female (Pörzse 2011, NIH 2013). Among those scientists who have the title `doctor of science` 15% are women (NIH 2013, NaTE own calculation), while the representation of women among the members of the Hungarian Academy of Sciences is only 6% (nevertheless it has increased by 2% since 2012).

[5] Candidate of Sciences (C.Sc.): a first post-graduate scientific degree in Hungary which has been awarded since the second half of the 20th century for original research that is recognized as a significant contribution to a scientific field.

3.2.2 Gender ratio for all tertiary graduates, by field of education

Figure 13: Gender ratio for all tertiary graduates, by field of education (2014)



1. Year of reference 2013.

Countries are ranked in descending order of the number of female graduates for one male graduate in the field of "Education".

Source: OECD. Table A3.3. See Annex 3 for notes (www.oecd.org/education/education-at-a-glance-19991487.htm).

StatLink http://dx.doi.org/10.1787/888933396834

In Hungary women are overrepresented among tertiary graduates, but some fields of study show an unbalanced gender distribution, with significantly more women in the fields of education, health and welfare. According to OECD data, in the case of education there were 5 women graduates for every man. Women graduating in health and welfare were 3 times as many as men. Engineering, manufacturing and construction show a reversed situation: there are three times more male graduates in engineering than female graduates. Only 12 % of IT students were female in 2015 (KSH, 2016).

The field of science shows the smallest imbalance: approximately 1.5 men graduates for every woman. Nevertheless, there are significant differences in some fields – while biology is a popular major subject among women, very few of them choose physics. (NaTE, own calculation)

3.2.3 Development of the number of women ISCED 6 graduates

Table 21: Development of the number of women ISCED 6 graduates

	2006		2007		2008		2009		2010		2011		2012	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
EU 27	55.163	43.519	57.196	46.754	59.784	50.743	54.876	46.586	56.162	47.185	62.626	54.628	63.472	56.916
Hungary	564	448	613	446	654	487	710	666	680	595	649	585	665	577

Source: SHE Figures 2015, p.36 (data for 2008-2012); SHE Figures 2012, p.78 (data 2006 and 2007)[6]

The number of women ISCED 6 graduates grew at a faster rate than the number of men during the observed time in Hungary. While the growth rate of men was near to the EU 28 average, the increase of women's participation was lower by 2 percent. (SHE FIGURES 2015 p25)

3.2.4 Development of the proportion of women ISCED 6 graduates differentiated by field of study

Table 22: Development of the proportion of women ISCED 6 graduates differentiated by field of study

		Education	Humanities & arts	Social sciences, business and law	Science, mathematics and computing	Engineering, manufacturing and construction	Agriculture and veterinary	Health and welfare	Services
EU 27	2006	64	52	47	41	25	51	54	
	2010	64	54	49	40	26	52	56	
	2012	64	54	51	42	28	57	59	45
Hungary	2006	61	49	52	39	29	45	39	
	2010	66	52	47	40	35	40	56	
	2012	68	49	51	38	22	59	52	-

Source: SHE Figures 2015, p.26 (data for 2012); SHE Figures 2012, p.79 (data for 2010, calculations JOANNEUM RESEARCH); SHE Figures 2009, p.51 (data for 2006)[7]

The development of the proportion of ISCED6 graduates is varied by the field of study. The most significant increase can be detected in agriculture and veterinary science (14 percentage points), followed by health and welfare (13 percentage points). Education also showed a 7 percentage points increase, while the humanities&arts, social sciences, business and law, science, mathematics and computing have remained steady over time. However, the proportion of women in engineering, manufacturing and construction has fallen by 7 percentage points. Interestingly, there was a peak in 2010, with a 6 percentage points rise between 2006 and 2010, but it had declined significantly (13 percentage points) by 2012.

[6] http://ec.europa.eu/research/science-society/document_library/pdf_06/she-figures-2012_en.pdf
[7] https://ec.europa.eu/research/science-society/document_library/pdf_06/she_figures_2009_en.pdf

3.2.5 Development of the proportion of women ISCED 6 graduates differentiated by narrow fields of study in the natural sciences and engineering

Analysing the data by narrow fields of study, it can be seen that Computing, Engineering and engineering trades, as well as Architecture and building are male dominated fields to an extreme level – only 6% of Computing, 15% of Engineering and engineering trades and 18% of the Architecture and building ISCED6 graduates are women, which are far below the EU average.

Table 23: Development of the proportion of women ISCED 6 graduates differentiated by narrow fields of study in the natural sciences and engineering

		Life Science	Physical Science	Mathematics and Statistics	Computing	Engineering and Engineering Trades	Manufacturing and Processing	Architecture and Building
EU 27	2004	53	34	31	18	19	30	36
	2010	57	34	32	19	23	42	34
	2012	58	37	36	21	25	35	38
Hungary	2004	34	33	40	11	-	40	33
	2010	56	40	26	14	29	36	53
	2012	49	37	33	6	15	38	18

Source: SHE Figures 2015, p.31 (data for 2004 and 2012); SHE Figures 2012, p.80 (data for 2010, calculations JOANNEUM RESEARCH)

Life sciences are a popular field of study among female graduates and ISCED6 graduates as well - this is the most gender balanced field with an almost 50-50% ratio.

The distribution of ISCED6 graduates across fields of study by sex differs from the EU average. In Hungary, Humanities and arts are more popular than in the EU; this is the most popular field among women (26%) and also almost 1 in 4 men chooses this field of study. Similarly to the EU average, Science, mathematics and computing is the first choice for men in Hungary (28%); in the case of women, the share of Science, mathematics and computing, Social sciences, business and law and Health and welfare is almost equal (19-18%). It is interesting that the proportion of ISCED6 graduates in the field of Engineering, manufacturing and construction lags behind the EU average in the case of both sexes.

3.2.6 Distribution of ISCED 6 graduates across fields of study by sex

Table 24: Distribution of ISCED 6 graduates across broad fields of study, by sex, 2012

		Teaching and education science	Humanities and arts	Social sciences, business and law	Science, mathematics and computing	Engineering, manufacturing and construction	Agriculture and veterinary	Health and welfare
EU-28	Women	4	14	20	26	9	4	23
	Men	2	10	17	32	21	3	14
Hungary	Women	5	26	19	19	4	10	18
	Men	2	23	16	28	12	6	14

Source: SHE Figures 2015, p.29 (data only for 2012)

3.3 Labour Market Participation of women and men in the RTDI (whole sector)

3.3.1 General labour market participation

3.3.1.1 Employment rate by sex

While the European employment rate for men stagnated between 2005 and 2015 (around 76%), women's participation increased by 4.3%, reaching the total rate of 64.3%. Though Hungarian employment rates for both sexes increased by 6-7% on average (in 2015 they were 75.8% for men and 62,1% for women), the participation of women is still under the EU28 average (Table 25). Moreover, this lower employment rate in Hungary can be observed in parallel with lower domestic unemployment rates (5%) compared to that of EU28 average (8.5%). (Eurostat 2016)

Fehler! Verweisquelle konnte nicht gefunden werden.25 shows that while the employment rate of EU28 showed a decreasing gender gap (from 15.9% to 11.6%), in Hungary women's growing employment rate can be observed in parallel with men's growing employment rate, leaving the gender gap unchanged (13.7%).

Table 25: Employment rates in the total population aged 20-64, by sex and gender gap

		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
EU28	Males	75,9	76,8	77,6	77,8	75,7	75,1	75,0	74,6	74,3	75,0	75,9
	Females	60,0	61,1	62,1	62,8	62,3	62,1	62,2	62,4	62,6	63,5	64,3
	Gender Gap	15,9	15,7	15,5	15,0	13,4	13,0	12,8	12,2	11,7	11,5	11,6
Hungary	Males	69,2	70,1	69,8	68,7	66,5	65,5	66,4	67,3	69,3	73,5	75,8
	Females	55,6	55,6	55,2	54,8	54,0	54,6	54,7	56,2	56,9	60,2	62,1
	Gender Gap	13,6	14,5	14,6	13,9	12,5	10,9	11,7	11,1	12,4	13,3	13,7

Source: Eurostat, LFS (http://ec.europa.eu/eurostat/de/data/database)

3.3.1.2 Employment rate by age of children and sex

Employment rates are affected by individuals' parental statuses as well, especially those of women's. It is a general phenomenon in the developed countries that while men with children tend to work more than men without children, childless women have higher employment rates than women with children. Table 27 presents well this difference, where the impact of parenthood on men's employment is minus 11.3%, and on women's it is 10%. These figures imply the typical gendered division of labour, in which men are the breadwinners and women are the caretakers. The impact of motherhood on the employment rate of women is in Hungary significantly higher than the OECD average: 37% versus 10%. The details of this notable effect are displayed in Table 26, which shows that the age of the child significantly differentiates further women's employment rate. There is an outstanding ratio in the case of women raising children under the age of three: only 12.5% of Hungarian women work during this period. This rate is quite high for women raising children between the ages of 3 and 16. Contrary to this, men's employment rates are high and it shows a reversed effect: the younger the children are, the higher the proportion of working fathers is.http://www.foreurope.eu/fileadmin/documents/pdf/Workingpapers/WWWforEurope_WPS_no059_MS206.pdf

Table 26: Employment Rate of Persons Aged 25-49 by Age of Youngest Child, Sex, Country and Year

			2005	2006	2007	2008	2009	2010	2011	2012	2013
Hungary	Female	Child aged under 3	11,4	13,5	11,1	12,3	12,2	12,5	12,2	14,1	12,5
		Child aged 3-5	56,4	58,4	58,2	59,9	59,0	58,4	60,7	63,2	65,0
		Child aged 6-16	73,6	73,4	74,7	75,3	73,9	74,2	72,1	74,4	75,9
	Male	Child aged under 3	86,5	87,3	88,3	87,3	87,1	85,3	86,8	87,6	88,7
		Child aged 3-5	87,1	87,2	86,1	85,9	84,8	83,8	86,7	83,5	85,5
		Child aged 6-16	85,4	85,7	86,6	86,0	82,3	82,8	83,2	84,0	84,5

Sources: UNECE Statistical Database: http://w3.unece.org/PXWeb2015/pxweb/en/STAT/STAT__30-GE__03-WorkAndeconomy

Table 27: Employment Rate of Persons Aged 25-49 without children by Sex, Country and Year

		2005	2006	2007	2008	2009	2010	2011	2012	2013
Hungary	Female	80,6	79,9	82,4	82,1	79,8	79,4	80,5	82,7	81,8
	Male	81,8	84	83,2	84	81,9	80,5	82,5	83,9	84,5

Sources: UNECE Statistical Database: http://w3.unece.org/PXWeb2015/pxweb/en/STAT/STAT__30-GE__03-WorkAndeconomy

Table 28: Employment impact of parenthood (age 20-49)

	Males	Females
OECD Average	-11,3	10
Hungary	-9,6	37

Source: Eurostat 2014; Plantenga 2014, p40

There are several explanations for women's low participation in the labour market when raising children under the age of three. Though the feminist paradox introduced by Chesnais (1998) described well that high labour market participation of women in developed countries in the last decades did not decrease fertility rates, childbearing still has a significant impact on careers. In contrast to developed countries, low fertility rates can be observed in countries where traditional roles have prevailed, such as Hungary, where both the socialist, conservative family policy and the new social policies introduced after the political regime change have outlined conservative economic and social roles for men and women (Nagy 2009).

The relationship between labour market activity and fertility rates is not fully unequivocal in Hungary: social norms, social institutions and social policy clearly have a strong effect on this relationhip (Scharle 2007). Though the patterns of social processes characteristic to Western countries can be observed in Hungary as well (such as the postponement of the first child or the spreading of alternative cohabitation forms instead of marriage (Paksi and Szalma 2009)), Hungarian society has remained very family-oriented. Among others, the maternity leave is one of the longest among the European countries (see earlier Figure 9 of the Possible duration of maternity leave). Moreover, there is a strong social agreement that mothers should stay at home with their children up to the maximum period of the parental leave that is 3 years (Blaskó 2005). This social norm and the family-orientation attitude of the population are so strong in Hungary that none of the governments could change the maternity leave system radically after the political system change.

The long maternity leave, which is supported socially and financially, alienates mothers from the labour market and women face serious difficulties when returning to work. Besides the devaluation of their knowledge, the loss of social capital and the discrimination of young mothers in the labour market also contribute to it: women with small children have scarce opportunities for part-time work and for sufficient childcare services (Bálint and Köllő 2008). Statistical data clearly support these observations: the proportion of mothers who work and raise children under the age of three is very low, this proportion hardly changed in the last decade (Table 26). Balancing work and family life is still a major problem for young mothers in Hungary, especially for those women with higher education who consider both life domains equally important (Nagy-Paksi 2014).

3.3.1.3 Employment by full-time and part-time status, sex

Table 29: Full-time equivalent (FTE) employment rates among women and men aged 20-64 (%) and gender gap (percentage points), 2010-2014

		2010	2014
EU28	Males	73,1	72,7
	Females	53,5	54,5
	Gender Gap	19,6	18,2
Hungary	Males	65,0	72,6
	Females	53,2	58,3
	Gender Gap	11,8	14,3

Source: EC 2016, Report on equality between women and men, p.49[8]

[8] http://ec.europa.eu/justice/gender-equality/files/annual_reports/2016_annual_report_2015_web_en.pdf

There was little change in the full-time equivalent (FTE) employment rates among the Member States between 2010 and 2014; the proportion remained around 73% for men and around 54% for women (Table 22), with a stagnating gender gap of 18-19%. While an increase in full-time employment can be observed with respect to both sexes in Hungary, the overall increase of the employment rates should be taken into consideration when understanding these results. Meanwhile, the gender gap informs us about a slight change in Hungary (it decreased from 11.8% to 14.3%), implying a lower rate of full-time employment for women than for men (Table 29).

3.3.2 Participation of women and men in RTDI

3.3.2.1 Proportion of scientists and engineers in total labour force, by sex

The proportion of human resources in science and technology (HRST) differs across the Member States (Table 25). While some countries managed to double the proportion of scientists and engineers between 2006 and 2015 (with an increase of 9-10% by 2015), some countries, including Hungary, are still very much lagging behind the EU28 average. The proportion of female scientists and engineers is lower than those of their male counterparts'. Though the proportion of scientists and engineers increased in Hungary (from 3.8% to 5.3%) between 2005 and 2015, the gender gap became wider due to the smaller increase of the number of female scientists and engineers (from 2.9% to 3.6%) (Table 32).

Table 30: Proportion of scientists and engineers in the active population between 15 and 74 years, by sex and year

GEO	SEX/TIME	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
EU28	Total	:	4,6	4,7	4,9	4,9	5,0	6,4	6,5	6,6	6,6	6,8
	Males	:	:	:	6,0	6,1	6,2	7,3	7,2	7,3	7,4	7,5
	Females	:	:	:	3,5	3,5	3,6	5,5	5,5	5,7	5,8	6,0
Hungary	Total	3,8	4,0	3,9	4,3	4,1	4,2	4,9	5,0	5,0	5,1	5,3
	Males	4,6	5,0	5,0	5,4	5,2	5,1	6,3	6,5	6,5	6,5	6,8
	Females	2,9	2,8	2,6	2,9	2,9	3,2	3,3	3,3	3,4	3,5	3,6

Source: Eurostat, HRST by category, sex and age [hrst_st_ncat]

3.3.2.2 Employment in knowledge intensive activities (KIA) by sex

'An activity is classified as knowledge intensive if employed tertiary educated persons in each sectors of industries and services represent more than 33% of the total employment in that activity' (Eurostat data description). Table 33 shows that on average the proportion of employees in knowledge intensive activities hardly increased in the Member States, it was 34.2% in 2008 and 36% in 2015. This table also displays women's greater participation in these activities: the proportion of men who worked in knowledge intensive activities was 29.1%, while this data for women was 44.2% in 2015. In Hungary, the total rates are displayed for the years between 2008 and 2015 were somewhat lower (33.1% and 34.5% of the total employment rate, respectively), also with a higher proportion of female participation.

Table 31: Annual data on employment in knowledge intensive activities as a percentage of total employment at the national level, by sex (from 2008 onwards, NACE Rev. 2)

GEO	SEX/TIME	2008	2009	2010	2011	2012	2013	2014	2015
EU28	Total	34,2	35,0	35,4	35,6	35,7	35,8	35,9	36,0
	Males	27,2	28,0	28,5	28,7	28,8	28,9	29,1	29,1
	Females	42,7	43,5	43,8	43,8	43,9	43,9	44,0	44,2
Hungary	Total	33,1	33,6	34,5	34,7	34,4	35,0	34,6	34,5
	Males	24,0	24,0	25,4	26,2	25,7	26,7	26,3	25,9
	Females	44,0	44,8	44,9	44,6	44,4	44,8	44,4	44,7

Source: Eurostat, employment in knowledge intensive activities [htec_kia_emp2]

3.3.2.3 Employment in knowledge intensive activities – business activities (KIABI) by sex

Table 32 shows that in the period between 2008 and 2015, female employment in knowledge intensive activities in the business industries displayed a 0.3% increase in the EU, while in Hungary such type of employment suffered a 1.3% decrease during the same period.

Table 32: Employment in knowledge intensive activities – business activities (KIABI) by sex

GEO	SEX/TIME	2008	2009	2010	2011	2012	2013	2014	2015
EU28	Total	13,2	13,4	13,5	13,7	13,8	13,8	13,9	14,0
	Males	13,3	13,6	13,9	14,1	14,2	14,4	14,5	14,6
	Females	13,1	13,2	13,1	13,2	13,3	13,2	13,3	13,4
Hungary	Total	12,8	12,3	12,7	13,0	12,5	12,9	12,3	12,0
	Males	11,6	11,1	11,8	12,3	11,7	12,3	11,6	11,1
	Females	14,3	13,7	13,9	13,9	13,6	13,5	13,1	13,0

Source: Eurostat, employment in knowledge intensive activities [htec_kia_emp2]

3.3.2.4 Researchers in all R&D sectors

Between 2005 and 2011 the average annual increase of the proportion of researchers was 1,5 % for women and 3,4% for men in Hungary, while the corresponding values for EU 28 are 4,8% for women and 3,3% for men (She Figures 2015), which means that - despite the developments - Hungary is still lagging behind the EU-28 regarding the annual growth rate of female researchers. This lagging stems from the declining share of female researchers in BES which cannot be counterbalanced by the public sectors (while the absolute number of female researchers is growing, their growth rate is lower then their men counterparts, as a consequence their share is declining).

Table 33: Number of researchers in all R&D sectors by sex and years (in full time equivalents)

TIME	GEO/SEX	EU28	Hungary
2005	Total	1.374.760	15.878
	Females	:	:
	Males	:	:
2006	Total	1.422.499	17.547
	Females	:	5.505
	Males	:	12.042
2007	Total	1.458.115	17.391
	Females	:	5.505
	Males	:	11.886
2008	Total	1.523.245	18.504
	Females	:	5.689
	Males	:	12.815
2009	Total	1.555.606	20.064
	Females	:	6.103
	Males	:	13.961
2010	Total	1.602.765	21.342
	Females	:	6.447
	Males	:	14.895
2011	Total	1.626.802	23.019
	Females	:	6.882
	Males	:	16.137
2012	Total	1.680.987	23.837
	Females	:	6.772
	Males	:	17.065
2013	Total1,26	1.731.241 1,57	25.038
	Females	:1,22	6.748
	Males	:1,51	18.290

Source: Eurostat, Total R&D personnel by sectors of performance, occupation and sex [rd_p_persocc]

Table 34: Share of women in R&D by countries

	share of female researchers in R&I				
	2005	**2007**	**2009**	**2011**	**2013**
EU28	:	:	:	:	:
Hungary	:	32%	30%	30%	27%

Source: Eurostat, rd_p_persocc (calculations JOANNEUM RESEARCH)

In line with the low growth rate of the proportion of women researchers, the share of women (Full Time Equivalent) in R&D decreased between 2007 and 2015 decreased from 32 to 27%. This low proportion places Hungary in the one-third of the EU28 with the lowest share of female research personnel.

3.3.2.5 Researchers differentiated by R&D sectors

Table 35: Number of researchers in the BES by sex and years (in full time equivalents)

TIME	GEO/SEX	EU28	Hungary
2005	Total	626.081	5.008
	Females	:	:
	Males	:	:
2006	Total	654.004	6.248
	Females	:	1.439
	Males	:	4.809
2007	Total	667.464	6.986
	Females	:	1.668
	Males	:	5.318
2008	Total	695.179	7.912
	Females	:	1.809
	Males	:	6.103
2009	Total	695.602	8.972
	Females	:	1.978
	Males	:	6.994
2010	Total	719.935	10.274
	Females	:	2.276
	Males	:	7.998
2011	Total	747.215	11.773
	Females	:	2.527
	Males	:	9.246
2012	Total	792.692	13.231
	Females	:	2.573
	Males	:	10.658
2013	Total	830.713	14.317
	Females	:	2.598
	Males	:	11.719

Source: Eurostat, Total R&D personnel by sectors of performance, occupation and sex [rd_p_persocc]

There is an increase in the absolute number of female researchers in BES: the number of women researchers doubled in the course of the last ten years but at the same time the total number of researchers almost tripled in total during this period. As a consequence, despite the growing number of female researchers, the share of women is extremely low in BES, they represent only 18,1% of the researchers (2013) and a substantial reduction can be observed in the last decade, as back in 2003 23% of researchers were still female . According to a recent study of NIH (NIH 2013) the reasons behind these numbers include: science and engineering and IT are not popular among girls when they choose their educational path, and the R&D sector recruits the majority of their researchers from these fields; workloads and working conditions are hardly reconcilable with work-life balance in BES; the sector does not tolerate the absence related to child-rearing.

Table 36: Number of researchers in the HES by sex and years (in full time equivalents)

TIME	GEO/SEX	EU28	Hungary
2005	Total	551.459	5.911
	Females	:	:
	Males	:	:
2006	Total	566.464	6.073
	Females	:	2.184
	Males	:	3.889
2007	Total	585.624	5.833
	Females	:	2.113
	Males	:	3.720
2008	Total	618.351	5.872
	Females	:	2.141
	Males	:	3.731
2009	Total	642.780	6.164
	Females	:	2.194
	Males	:	3.970
2010	Total	663.331	6.041
	Females	:	2.147
	Males	:	3.894
2011	Total	656.965	5.975
	Females	:	2.199
	Males	:	3.776
2012	Total	661.902	5.932
	Females	:	2.258
	Males	:	3.674
2013	Total	675.973	5.939
	Females	37,9	2.253
	Males	:	3.686

Source: Eurostat, Total R&D personnel by sectors of performance, occupation and sex [rd_p_persocc]

In the higher education sector both the absolute number and the relative proportion remained steady between 2003 and 2013. There was no expansion in the number of research personnel in HES, nor in the GOV sector due to the lack of finances. As it was described in chapter 1.1.2, universities and public research organisations play a minor role in research compared to the business sector, and the public R&D intensity has decreased over the last decade to 0.41% (by 2013), which is well below EU average.

Table 37: Number of researchers in the GOV by sex and years (in full time equivalents)

TIME	GEO/SEX	EU28	Hungary
2005	Total	181.758	4.959
	Females	:	:
	Males	:	:
2006	Total	185.036	5.226
	Females	:	1.882
	Males	:	3.344
2007	Total	188.306	4.572
	Females	:	1.724
	Males	:	2.848
2008	Total	192.370	4.720
	Females	:	1.739
	Males	:	2.981
2009	Total	199.210	4.928
	Females	:	1.931
	Males	:	2.997
2010	Total	201.547	5.027
	Females	:	2.024
	Males	:	3.003
2011	Total	203.821	5.271
	Females	:	2.156
	Males	:	3.115
2012	Total	207.428	4.674
	Females	:	1.941
	Males	:	2.733
2013	Total	210.635	4.782
	Females	:	1.897
	Males	:	2.885

Source: Eurostat, Total R&D personnel by sectors of performance, occupation and sex [rd_p_persocc]

The share of women is highest in the governmental sector but the absolute number of women remains steady over the observed period, while the number of men decreased. Consequently, the proportion of women increased from 36,9% to 39,6%. We can presume that, as a result of low salaries, a great number of men left the GOV sector for BES which offers better environment for research and competitive salaries.

Table 38: Number of researchers in the PNP by sex and years (in full time equivalents)

TIME	GEO/SEX	EU28	Hungary
2005	Total	15.462	:
	Females	:	:
	Males	:	:
2006	Total	16.995	:
	Females	:	:
	Males	:	:
2007	Total	16.721	:
	Females	:	:
	Males	:	:
2008	Total	17.345	:
	Females	:	:
	Males	:	:
2009	Total	18.014	:
	Females	:	:
	Males	:	:
2010	Total	17.952	:
	Females	:	:
	Males	:	:
2011	Total	18.802	:
	Females	:	:
	Males	:	:
2012	Total	18.965	:
	Females	:	:
	Males	:	:
2013	Total	13.920	:
	Females	:	:
	Males	:	:

Source: Eurostat, Total R&D personnel by sectors of performance, occupation and sex [rd_p_persocc]

The membership of the Hungarian Academy of Sciences is considered as the highest academic level. The representation of women in these academic positions is small, 6 %, although it has increased by 2% since 2012. There are more women (15%) among those scientists who have the title `doctor of science` (NIH 2013, NaTE own calculation). In addition, in the case of the research institutes of HAS, which constitutes the biggest part of the governmental sector in research and development, the proportion of female researchers is 36% (data from 2014), which is close to the EU target.

3.4 Horizontal segregation

3.4.1 General horizontal segregation

3.4.1.1 Gender segregation in occupations and in economic sectors, 2004 vs. 2014

Table 39: Gender segregation by economic sectors

	Gender segregation in occupations (%)		Gender segregation in sectors (%)	
	2004	**2014**	**2004**	**2014**
EU 28	24,7	24,4	17,7	18,9
Austria	26	26,9	18,9	18,9
Denmark	27,5	25	19,1	19
France	26,5	26,1	17,1	18,8
Germany	26,7	25,4	18,1	19,4
Hungary	28,6	27,5	19,7	19,8
Spain	26,3	25,3	20,2	19,4
Sweden	27,6	25,3	21,4	20,6

Source: EC 2016, Report on equality between women and men, p.52

Sectoral concentration is constantly decreasing over the decades and women are employed in an expanding range of occupations. The occupational segregation of men is more prevalent than that of women. In 2006 60.4% of men worked in segregated occupations, while the corresponding value was 49,5% in the case of women. In contrast, only 9.7% of women and 9% of men worked in a gender balanced occupation. On average, the gender segregation of occupations is relatively high, 27,5%, which is the highest among the investigated countries.

The feminization of occupations was a typical characteristic of the socialist era. Despite the fact that in bureaucratic hierarchies segregation is rigid and re-segregation almost never occurs, in Eastern-European countries after the change of the regime some feminized occupations and professions were upgraded and men started to occupy these areas. Finances are a typical area that gained a higher prestige and the chances of women for pursuing a career in this field decreased as a consequence (Koncz 2011). Since then there have been no major changes in occupational segregation, consequently we can see almost identical values in 2004 and 2014. Legislators, senior officials and managers are male dominated occupations, while technicians and associate professionals are more likely to be women than men. Clerks, service workers and shop and market sales workers are typical feminized occupations, while the vast majority of plant and machine operators and assemblers, craft and related trade workers are men.

Table 40: Employment by Occupation (ISCO88), Sex, Measurement, Country and Year

HUNGARY		2004	2014
Legislators, senior officials and managers	Female	33,7	39,8
	Male	66,4	60,2
Professionals	Female	57,2	53,9
	Male	42,8	46,1
Technicians and associate professionals	Female	64,7	63,1
	Male	35,3	36,9
Clerks	Female	76,4	74
	Male	23,5	26
Service workers and shop and market sales workers	Female	60,9	58,4
	Male	39,1	41,6
Skilled agricultural and fishery workers	Female	26,4	27,4
	Male	73,6	72,6
Craft and related trade workers	Female	14,5	10,7
	Male	85,5	89,3
Plant and machine operators and assemblers	Female	28,9	29,3
	Male	71,1	70,7
Elementary occupations	Female	55,6	50,4
	Male	44,4	49,6
Armed forces	Female	..	14,2
	Male	88,4	85,8

Source: UNECE Statistical Database: http://w3.unece.org/PXWeb2015/pxweb/en/STAT/STAT__30-GE__03-WorkAndeconomy/004_en_GEWEEmpISCO88SPN_r.px/?rxid=144ff3cd-f9b5-4e36-a865-47609264ae8f

3.4.2 Proportion of female researchers by economic activities (NACE Rev. 2) in the business enterprise sector, by sex

Table 41: Proportion of female researchers in the business enterprise sector, by economic activity (NACE Rev. 2) 2012

		Manufactu-ring	Manufacture of chemicals and chemical products	Manufacture of basic phar-maceutical products and preparations	Services of the business economy	other NACE category
EU 27	2009	15	27	45	19	83
	2012					
Hungary	2009	24	31	53	15	29
	2012	21	32	55	15	31

Source: SHE Figures 2015, p.60 (data only for 2012); calculations JOANNEUM RESEARCH

In BES women' representation reach the highest shares in Manufacture of basic pharmaceutical products and preparations (which is in accordance with the tertiary education choices where

pharmacy and chemistry is very popular among female students) and lowest rates in services of the business economy.

3.4.3 Distribution of researchers in the Higher Education Sector (HES), across fields of science, 2012

Social science is the most typical field of science chosen by women in HES, with 29 % of female researchers working in this area, which is the highest proportion among the observed countries. Medical sciences are the second: almost 1 in 4 female researchers work in this field. One in 5 female researchers choose Humanities. These are the fields of science that are considered as typically feminized in Hungary.

Even as Natural sciences are a relatively popular field of study for tertiary education students, Hungary has the lowest rate of female researchers in HES in the field of natural sciences.

Similarly to other countries, Engineering and technology and Agricultural sciences have the lowest shares of female researchers, 8% and 6% of them work in these fields of science, respectively.

Table 42: Distribution of researchers in the Higher Education Sector (HES), across fields of science, 2012

Country	Gender	Natural sciences	Engineering and technology	Medical sciences	Agricultural sciences	Social sciences	Humanities
Hungary	Women	15	8	23	6	29	19
	Men	24	18	16	6	22	15

Source: SHE Figures 2015, p.56 (data only for 2012)

3.4.4 Horizontal segregation by scientific field in the higher education sector

Table 43: Dissimilarity index for researchers in the higher education sector and government sector

	Dissimilarity Index 2006		Dissimilarity Index 2009		Dissimilarity Index 2012	
	HES	GOV	HES	GOV	HES	GOV
EU 27	0,14	0,18	-	-	-	-
Hungary	0,19	0,23	0,20	0,19	0,18	0,17

Source: SHE Figures 2015, p.80 (data only for 2012); SHE Figures 2012, p.77; SHE Figures 2009, p64

Dissimilarity index in HES was fluctuating between 0.18 and 0.20 between 2006 and 2012. We can say that no major changes have occurred in this figure, which is higher than the EU average by 5 per cent. At the same time, DI has significantly decreased in GOV from 0.23 to 0.17, which is equal to Sweden. This improvement towards equality presumably stems from a negative effect: the proportion of female researchers is in inverse proportion to GERD and – as we discussed in the chapter about innovation – GERD is low in the governmental sector and it even decreased over the last years.

An interesting factor of distribution among the field of sciences is age. The share of women in Natural sciences is slightly growing in younger generations and also this is the case in Medical sciences. However, in the case of Engineering and technology we cannot observe more female researchers in the younger generation than in the older ones. On the contrary, in the age group 25-34 gender is balanced in Agriculture, while in the cohort 54-64 only 28% is female, and a growing trend is visible.

3.5 Vertical Segregation

3.5.1 General vertical segregation

The recent development of women's vertical segregation in Hungary has been paradoxical in multiple ways. On the one hand, in the last decades the educational level of young females has been clearly higher compared to their male counterparts. On the other hand, while twenty-twenty five years ago the proportion of women leaders in Hungary was high in European comparison , this relatively advanced situation has disappeared (Nagy 2013: 52).

3.5.1.1 Share of male and female members of boards in largest quoted companies, supervisory board or board of directors

Table 37 shows that in Hungary the share of female members of boards in the largest quoted companies, supervisory boards or boards of directors is generally and significantly lower than the EU-wide share. This difference is detectable in leading positions in both the public and the private sector. The share of female ministers (presently none), MPs, and members of the regional assemblies is lower than in the European Union. However, the difference is less significant in the latter cases. Nevertheless, the percentage of female members of the central bank is higher in Hungary than the EU proportion of females in such positions.

Table 44: Share of male and female members of boards in largest quoted companies, supervisory board or board of directors

	share of female ministers	share of female members of parliament	share of female members of regional Assemblies	share of female members of boards, in largest quoted companies, supervisory boards or board of directors	share of female members of central bank
EU	**22**	**25**	**31**	**16**	**17**
Hungary	9	9	9	7	29

Source: EIGE gender equality index 2015, page 173[9]

The reason behind the relatively high share of female members of the central bank is rooted in the development of the two-levelled bank system in Hungary, which was characterized by a great demand for highly qualified labour force. Furthermore, women's participation increased during the economic recession in 2008 due to the rapid decrease in male employment in this sector (Nagy 2013:54-56).

[9] http://eige.europa.eu/sites/default/files/documents/mh0415169enn.pdf

Obviously, the situation of women in top positions in the bank system is paradoxical. On the one hand, public opinion is sensitive to women' disadvantageous situation on the labour market; on the other hand, the figure of female leaders is scarcely accepted by the strongly family-oriented Hungarian society, which is held to be career-oriented, maculine and tipically single. Moreover, female leaders are especially rejected by their male counterparts, as they consider them to be unpredictable, suggestible and emotional (Nagy 2013: 60).

3.5.2 Vertical segregation in RTDI

The Hungarian government has not applied any gender quotas ensuring a representative gender balance (see 1.4.1. above). The high level of vertical segregation is the main weakness of RTDI in Hungary, especially in the private sector. Obstacles to Hungarian women's career advancement are largely the same as what several authors (Powell 1999, Eagly and Carly 2007) identified. Socialisation, motivation, attitudes, work-life balance, socio-cultural factors, organisational cultures, gender roles, segregated labour market, lack of network, etc. – these are all elements of women's vertical segregation (Nagy 2013). Moreover, due to the strong traditional family and social roles in Hungary, women face more rigid masculine organisational cultures in RTDI, which hardly help work-life balance and hinder female scientists' career advancement (Nagy 2014). In addition, recent research on the technical fields revealed that, apart from the strong traditional family and social roles, the high level of labour market uncertainty negatively influences young researchers' academic advancement (Paksi, Nagy and Király 2016).

3.5.2.1 Proportion of female academic staff, by grade

The proportion of female academic staff shows a slowly increasing tendency in Hungary, even though the percentage is below the EU figures in all of the three studied years of 2007, 2010, and 2013. Looking at the distribution of Hungarian female academics among the grades, it is obvious that women are underrepresented in the most senior academic positions. However, according to the latest data an increase in the proportion of female academics is detectable in these positions; the Hungarian figures even transcended the EU numbers in Grade A and Grade B positions. At the same time, in Grade C and Grade D positions the proportion of women is lower than the EU average (Table 45).

Table 45: Proportion of female academic staff, by grade and total

		Grade A	Grade B	Grade C	Grade D	Total
EU 27	2007	19	36	44	44	38
	2010	20	37	44	46	40
EU 28	2013	21	37	45	47	41
Hungary	2007	19	32	45	39	37
	2010	21	36	40	37	36
	2013	24	40	40	44	39

Source: She Figures 2015, p.129 (data only for 2013); She Figures 2012, p90 (data for 2010); She Figures 2009, p75 (data for 2007)

3.6 Employment conditions/status/contracts

3.6.1 General working time culture

The number of weekly working hours in the EU shows a downward trend (Table 46). In 2005 the total weekly working hours of full-time workers were 41.4 hours, and in the course of ten years this number decreased to 40.5 hours. Hungary followed suit. The decrease was sharper among men and by 2015 the length of the male full-time workweek dropped to 39.9 hours, 1.3 hours longer than that of their female counterparts. This difference is only half of the EU-wide gap that was still 2.6 hours in 2015, even after the aforementioned downward trend.

The length of the workweek and therefore the work-life balance fundamentally influence the subjective well-being of employees. According to research findings, working hours can contribute to well-being but only until a certain point, then the workload negatively affects the worker (Abdallah, Stoll and Eiffe, 2013).

Table 46: Actual weekly working hours of full-time workers by gender and country

		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
EU28	women	39,4	39,2	39,2	39,1	38,9	39,1	39,1	39,0	38,9	38,9	38,9
	men	42,5	42,3	42,3	42,1	41,7	41,9	41,9	41,7	41,6	41,5	41,5
	total	41,4	41,2	41,2	41,0	40,7	40,8	40,8	40,7	40,6	40,5	40,5
Hungary	women	39,8	39,8	39,6	39,8	39,8	39,8	39,5	38,9	38,6	38,7	38,6
	men	42,0	41,8	41,5	41,5	41,1	41,1	10,9	40,3	40,0	39,8	39,9
	total	41,0	40,9	40,7	40,8	40,5	40,5	40,3	39,6	39,4	39,3	39,3

Source: Eurostat, Average number of actual weekly hours of full-time work, http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.doc

3.6.2 Working time in RTDI

Table 47 shows that the actual working hours of persons employed in academic professions are in an EU-wide trend of convergence between the sexes. It implies a slight increase in the working hours of female academics and also a slight decrease for their male counterparts. The data from 2015, the last year in the table, still shows an almost two-hour difference by gender in the length of the workweek. Hungary experienced the same convergence but, contrary to the EU-wide figures, the table shows that the working hours of academic professionals of both sexes decreased and the difference between the weekly working hours by gender is also less than the EU average at only 1 hour.

As in other developed countries, Hungarian professionals – especially of those of younger cohorts (Friesenhahn and Beaudry 2014, p.55-56) – are also often given extra (formal and informal) workloads. Overtime hours on weekdays, but often on the weekends, are more typical, especially when working hours are flexible and/or there is an opportunity for home office. In some disciplines the laboratory work often sets the long working hours in stone for researchers (Paksi, Nagy and Király, 2016).

Table 47: Actual weekly working hours of full-time employed persons in academic professions by gender and country

		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
EU28	women	38,0	38,0	38,2	38,2	38,1	38,3	38,1	38,2	38,2	38,3	38,3
	men	42,3	42,0	42,0	41,8	41,6	41,6	41,7	41,7	41,4	41,2	41,2
	total	40,4	40,3	40,4	40,2	40,1	40,2	40,1	40,1	40,0	39,9	39,8
Hungary	women	38,5	38,9	38,7	39,1	39,2	39,1	38,8	38,2	38,1	38,2	38,1
	men	40,7	40,9	40,7	40,5	40,3	40,5	40,1	39,3	39,3	39,0	39,1
	total	39,5	39,8	39,6	39,7	39,7	39,7	39,4	38,7	38,6	38,6	38,6

Source: Eurostat

In Hungary, a lower percentage of male researchers in higher education work part-time than in the European Member States, while the share of female researchers are similar to the EU data.

Part-time work is a more widespread employment form in the developed countries and recently it has been spreading even more. This type of employment is more favourable in countries where the employment legislation does not fully extend to part-time employment. Working in part-time jobs is not widespread in Hungary; the proportion of these employees is around only 5-6%. In Hungary, the tax and social insurance systems do not promote part-time employment, therefore this solution is not profitable for employers (Bankó 2014). Childbearing significantly affects part-time employment rates in Hungary, just like in other European countries. In the EU Member States, 20% of childless women (8.2% of men) and 45.1% of women with three children or more (7% of men) worked in part-time jobs. These percentages for women are 5.1 (3.5 for men) and 14.6 (2.9 for men) in Hungary, respectively (Eurostat 2014, employed population between age 25-49).

In Hungary, researchers working in the public sector (research universities and institutes) have more opportunities for part-time work than those employed in the private sector. However, in knowledge-intensive professions in Hungary this form of atypical work is not profitable at all. Taken into consideration the lower salary and the fewer chances for career advancement in part-time jobs, even women avoid this employment form, even if there are any opportunities for it (Paksi, Nagy and Király, manuscript). However, Table 48 below shows that Hungarian women do not lag behind the European average (13.5%) in terms of part-time work in higher education. This phenomenon can be explained as follows: firstly, part-time work is often the 'best' form of employment institutions can provide due to the lack of financial resources; secondly, researchers are often employed in full-time jobs at their primary workplace, which also limits their opportunities for a second job (due to legislation).

Meanwhile, the proportion of women with a PhD who undertake part-time jobs is lower (6,2%) than the national average for women (8.2%) in 2009 (Central Statistical Office 2011: 19).

Table 48: Part-time employment of researchers in the higher education sector out of total researcher population, by sex 2012

	Men	Women
EU 28	8,5	13,5
Hungary	7,1	13,3

Sources: SHE Figures 2015, p102

3.6.3 Working contracts in RTDI

3.6.3.1 Fixed-term contracts vs. permanent positions/contracts

Researchers with "precarious working contracts" are those who have no contracts, who have fixed-term contracts up to one year, or those with other contracts associated with their student status.

Table 49: "Precarious" working contracts of researchers in the higher education sector out of total researcher population, by sex, 2012

	Men	Women
EU 28	7,3	10,8
Hungary	6,6	16,5

Sources: SHE Figures 2015, p104, figure 5.2

The overrepresentation of women amongst those who work in "precarious" research positions in the higher education sector is a general problem throughout the EU. However, Hungary's respective proportion of 16.5% is significantly higher than the EU average of 10.8%. The gender gap is also noteworthy: 2.5 times more women work under this type of working contract than men if we consider researchers in the Hungarian higher education sector.

Table 50: Career stage with stable employment conditions

Career stage with stable working conditions	Number of countries	Countries
R1	2	Romania, Brazil
R2	4	Belgium, Ireland, Netherlands, Slovenia
R3	17	Austria, Bulgaria, Cyprus (no tenure-track option in R4), Czech Republic, Denmark (no tenure-track option in R4), Finland, France, Germany, Hungary, Iceland, Italy, Luxembourg, Poland, Portugal (no tenure-track option in R4), Spain, Turkey, Singapore
R4	11	Croatia, Serbia, USA, Australia, Japan, South Korea, Bosnia and Herzegovina (no tenure-track option), Lithuania (no tenure-track option), Montenegro (no tenure-track option), Norway (no tenure-track option), Sweden (no tenure-track option)
No career stage provides stable working conditions	5	Estonia (tenure-track option in R1+2), Macedonia, Latvia, Russia, China
Miscellaneous	1	Israel
Missing information	6	Liechtenstein, Switzerland, Canada, Albania, Greece, Faroe Islands

Source: MORE2 Draft Report WP3 and WP4 2012, p68

Hungarian women in precarious employment scored 8th among the EU Member States in 2012 (She Figure 2015: 104) (Table above).

Similarly to what is the case in Western countries, fixed-term contracts are more typical for women, especially in the case of the younger and older cohorts in Hungary (Hárs, 2012: 27-28). Meanwhile, after the amendment of the Labour Code in 2012, employers have been not obliged to extend a person's employment if the working contract terminates during the maternity leave. Young female researchers are often offered short and fixed-term contracts during early tenure-track employment. In male-dominated technical fields, such as engineering, young female researchers often experience discrimination based on their sex: they have fixed-term contracts instead of permanent contracts, or, shorter fixed-term contracts instead of longer fixed-term contracts to a greater extent than their male colleagues (Paksi, Nagy and Király 2016).

Similarly to most countries, Hungarian researchers usually enjoy stable employment conditions only in the R3 career stage when one becomes an established researcher who has a high level of independence (Table 50).

Career opportunities

The economic downturn and structural changes after the political regime change in Hungary resulted in a declining demand for R&D professionals. The number of available academic or private sector positions has not increased significantly since that time; nevertheless, considerably more students take part in doctoral training than the number of adequate job opportunities (Fábri, 2008). This problem is not solved by the recent post-doctoral programmes of the Hungarian Academy of Sciences, which provide 3-year contracts for 20-25 individuals per year under the age of 40, with a clause that forbids receiving any other funds during this period. Early tenure track employment usually consists of a series of fixed-term contracts, often in part-time work, with scarce prospects for calculable career paths on the long run. Moreover – contrary to the EU tendencies – a PhD degree is often a disadvantage in the Hungarian private sector. In sum, Hungarian PhD holders face similar or even greater difficulties than their counterparts in Western Europe. Emigration became widespread among PhD holders (Pálinkó et al., 2010) and brain drain is a major problem that science policy should tackle.

Most of Hungarian PhD holders (around 65%) usually find positions at research universities or institutes after obtaining their degree (Fábri 2008). A Hungarian qualitative research using interviews differentiated four ‘ideal typical’ career paths of young biologists after obtaining a PhD degree (Pálinkó 2009).

- automatic employment at research universities or institutes: strong attachment to the country and family,
- finding a researcher position abroad, usually childless individuals; after establishing a family they intend to return home, but facing negative experience at home they go back abroad eventually,
- abandoning the research career,
- the survival type: strong researcher identity and compromise skill, stay home for a few years, then go abroad.

3.7 Gender Pay Gap

3.7.1 General Gender Pay Gap

The gender pay gap is the difference between the average gross hourly earnings of male and female paid employees, expressed as a percentage of the former. The 'National Strategy for the Promotion of Gender Equality – Guidelines and Objectives 2010-2021' included the intention of closing the employment and pay gap between men and women but no further action plan has been prepared (see 1.4.1. above).

During the 7 years between 2007 and 2014, the gender pay gap fluctuated in Hungary. It showed an increase from 2007 to 2012 when it peaked at 20.1%, then a decreasing tendency started. In 2014, it was 15.1%, 1 percentage point lower than the EU number (Table 51).

Table 51: Gender Pay Gap

GEO/TIME	2007	2008	2009	2010	2011	2012	2013	2014
EU28	:	:	:	16,1	16,5	16,6	16,4	16,1
Hungary	16,3	17,5	17,1	17,6	18,0	20,1	18,4	15,1

Source: Eurostat, Structure of Earnings Survey [earn_gr_gpgr2][10] und Report on equality 2015, http://ec.europa.eu/justice/gender-equality/files/annual_reports/2016_annual_report_2015_web_en.pdf, (p51)

3.7.2 Gender Pay Gap in RTDI

The table shows that the percentage of Hungary's gender pay gap in 2010 was roughly the same in the field of "Scientific research & development" as in the total economy - 17.7% and 17.6%, respectively. In fact, the scientific R&D gender pay gap was even 0.2 % lower than the EU percentage. However, the figure relevant for the whole economy shows a 1% higher gender pay gap than the EU-wide value.

Table 52: Gender pay gap (%) in the economic activity "Scientific research & development" and in the total economy, 2010

	Scientific research and development services	Total economy
EU 28	17,9	16,6
Hungary	17,7	17,6

Source: SHE Figures 2015, p. 109 (for 2010 only)

[10] The unadjusted gender pay gap (GPG) represents the difference between the average gross hourly earnings of male paid employees and of female paid employees as a percentage of average gross hourly earnings of male paid employees. The GPG is calculated on the basis of:
- the four-yearly Structure of Earnings Survey (SES) 2002, 2006, 2010, etc., and with the scope as required by the SES regulation,
- national estimates based on national sources for the years between the SES years, from reference year 2007 onwards, with the same coverage as the SES.

Data are broken down by economic activity (Statistical Classification of Economic Activities in the European Community - NACE), economic control (public/private) of the enterprise as well as working time (full-time/part-time) and age (six age groups) of employees. Data are released in February/March on the basis of information provided by national statistical institutes.

3.7.3 Gender Gap in Scientific Outputs

3.7.3.1 Gender Gap in Scientific publications

The table below shows a continuous increase of scientific publications by Hungary from 2005 to 2014. The increase during these 9 years is roughly 48%.

Table 53: Number of scientific publications by country

Men and women	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Hungary	1450	1664	1717	1830	1896	1855	2087	2133	2141	2145

Source: Scopus, calculations by Fraunhofer ISI

In Hungary the proportion of scientific publications written by women as main authors has shown a slight increasing tendency. While in 2005 this proportion was 37%, by 2014 it climbed to 42%.

Table 54: Proportion of publications written by women as main authors

Share of women	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Hungary	37%	35%	38%	40%	40%	40%	40%	40%	40%	42%

Source: Scopus, calculations by Fraunhofer ISI

The figure shows that in Hungary the women to men ratio of authorship in all fields of science is below the EU ratio by 0.1 point. The ratio is the lower only in one country (Montenegro, 02), which means that Hungary is seriously lagging behind all the countries.

Table 55: Women to men ratio of authorships (when acting as corresponding author) in all fields of science (2011-2013)

	Ratio
EU 28	0,5
Hungary	0,3

Parity between women and men = 1

Source: SHE Figures 2015, p. 153

Table 56: Women to men ratio of scientific authorship (when acting as corresponding author), by field of science, 2007-2009 and 2011-2013

Table		Natural sciences	Engineering and technology	Medical sciences	Agricultural sciences	Social sciences	Humanities
EU 28	2007-09	0,3	0,2	0,5	0,6	0,5	0,6
	2011-13	0,3	0,3	0,5	0,7	0,6	0,6
Hungary	2007-09	0,3	0,2	0,4	0,4	0,3	1,2
	2011-13	0,3	0,2	0,3	0,5	0,3	1,3

Source: SHE Figures 2015, p. 155

According to data from 2007 and 2011, the women to men ratio of corresponding authorship does not show great differences between the EU-28 and Hungary in general, and it is also true for the fields of natural sciences and engineering and technology. These disciplines have almost the same

ratio of sexes of the authors. However, medical sciences, agricultural sciences, and social sciences show some differences from the EU ratio in this respect. The most significant difference from the other EU countries can be seen in the field of humanities where the EU ratio was 0.6 in both years while in Hungary this value was 1.2 and 1.3 in the respective years (Table 56).

3.7.3.2 Gender gap in scientific patents

According to Table below, when compared to other European countries, the Hungarian contribution to European patents is very small. The figures show even a sharp decrease of the number of accepted patents by year.

Table 57: Number of patents

men and women	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Hungary	132	144	168	144	154	162	161	127	77	4

Source: Patstat, calculations by Fraunhofer ISI

The same tendency can be seen in case of patents filed by women (Table 58).

Table 58: Proportion of patents filed by women

Share of women	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Hungary	14%	13%	11%	8%	11%	9%	8%	9%	16%	1%

Source: Patstat, calculations by Fraunhofer ISI

3.8 Sex differences in international mobility of researchers

3.8.1 During their PhD

There are several scholarships available for students during their PhD studies in Hungary, such as the Campus Hungary Program, Erasmus, CEEPUS (Central European Exchange Program for University Studies), Hungarian Scholarship Committee, HAESF and Fulbright. Information about the participation of students in the programmes has its limits, for the statistics available on each programme's website are scarce, and/or do not have the gender dimension. It further limits the opportunities for research aiming to show a picture of current situation.

Table 59: International mobility rates of HES researchers during their PhD, by sex and sex difference 2012

	Women	Men	sex difference
EU 27	17,6	18,9	1,3
Hungary	25,3	20,4	-4,9

Source: She Figures 2015, p.106 and 124 (based on More2)

Data from 2012 on the international mobility rates of HES researchers during their PhD period shows a -4.9% difference between the sexes. It means that, contrary to HES researchers from most of the EU countries, Hungarian female HES researchers tend to be more mobile internationally than their male counterparts. There is a great variation among EU countries but it is also noteworthy that Hungarian HES researchers tend also to be more mobile internationally during their PhD than the EU average.

The sex difference is calculated by subtracting the share of internationally mobile women researchers from the share of internationally mobile men researchers.

3.8.2 In their post-Ph.D. careers

Hungarian legislation allows only a couple of years for researchers to stay abroad, during which period employers can sustain their position. In the absence of supporting institutional background the return seems almost impossible for these researchers. For this reason, many researchers stay immobile or take only few month of long absences (Pálinkó 2009). International mobility is hardly manageable for young mothers in Hungary. Female researchers with family can only take these opportunities if they have a supporting partner who also can make a living abroad. However, dual careers have their own disadvantages: finding positions for both of the partners with the same qualification and in the same city is a huge challenge (Paksi, Nagy and Király, manuscript).

According to Hungarian surveys, 15.9% of female and 23.1% of male PhD holders chose to continue their career abroad. 26% of the researchers in natural sciences, 20% in humanities stayed abroad for at least 6 months. The highest value can be seen in the case of male physicists under the age of 40: 47.9% of them decided to leave the country. The most frequently targeted countries are the United States, Germany, Great Britain, France (Mosoniné Fried and Horváth, 2012).

Data from 2012 on international mobility rates of HES researchers in post-PhD careers shows a 9% difference between the sexes. In the case of Hungary this number is lower by 1.1%, but the figures also indicate that Hungarian HES researchers tend to be more mobile internationally than the EU average.

Table 60: International mobility rates of HES researchers in post-PhD careers, by sex and sex difference 2012

	Women	Men	sex difference
EU 28	25,1	34,2	9
Hungary	29,2	37,1	7,9

Source: She Figures 2015, p.107 & 125 (based on More2)

3.9 Women in decision making positions in RTDI

The vertical segregation of women in RTDI is an apparent phenomenon in Hungary as well. The Hungarian Government does not have quotas to ensure a representative gender balance in any sector. However, under the National Strategy for the Promotion of Gender Equality – Guidelines and Objectives (2010- 2021), the proportion of women in leading positions in both the public and private

sectors should increase by one third by the end of the period, as a result of making equal opportunity plans more pronounced. (Deloitte Researchers´ Report Hungary 2014, p8)

3.9.1 Proportion of women grade A staff by main field of science

The EU data show that between 2010 and 2013 every main field of science witnessed an increase of the proportion of female grade A staff. No data are available for Hungary.

Table 61: Proportion of women grade A staff by main field of science, 2013

		Natural sciences	Engineering and technology	Medical sciences	Agricultural sciences	Social sciences	Humanities
	2007	-	-	-	-	-	-
EU27	2010	13,7	7,9	17,8	15,5	19,4	28,4
EU 28	2013	15,8	9,8	23,3	22,7	23,5	30
Hungary	2007	-	-	-	-	-	-
	2010	-	-	-	-	-	-
	2013	-	-	-	-	-	-

Source: She Figures 2015, p.133 (data only for 2013); She Figures 2012, p93 (data for 2010); She Figures 2009, p 116 calculations by JR (data for 2007)

3.9.2 Glass Ceiling Index

Table 62: Glass Ceiling Index

	2004	2007	2010	2013
EU 27	2	1,8	1,8*	1,8*
Hungary	2,3	2	1,8	1,6

* Data for EU 28

Source: She Figures 2015, p.136; She Figures 2012, p.96; She Figures 2009, p.78

The Glass Ceiling Index (GCI) compares the proportion of women in grade A positions with the proportion of women in academia. A GCI of 1 indicates that there is no difference between the promotion of women and men. A score of less than 1 means that women are over-represented in grade A level positions and a GCI score higher than 1 point towards a Glass Ceiling Effect.

The Glass Ceiling Index of the EU countries between 2004 and 2013 shows a minimal decrease of 0.2 point. In the same period in Hungary there was a 0.7 point continuous decrease.

3.9.3 Proportion of women heads of institutions in the higher education sector

During the period of 2007 and 2014 the proportion of women heads of institution increased by 7% all over the EU, while in Hungary there was an 8% increase. However, it has to be taken into consideration that the starting point was lower, 9 % versus 13%.

Table 63: Proportion of women heads of institutions in the higher education sector

	2007	2010	2014
EU 27	13	16	20*
Hungary	9	9	17

* Data for EU 28

Source: She Figures 2015, p.141; She Figures 2012, p.115; She Figures 2009, p.97

3.9.4 Proportion of women in boards, members and leaders

The proportion of women in boards as members and leaders in Hungary was 19% both in 2007 and in 2010 - which is below the EU percentages of 22% and 36%, respectively. In 2014 the proportion of female participation in boards as members was still lower than the EU average of 28%. However, in Hungary the share among leaders is is 24 % - 2 % higher than the EU total.

Table 64: Proportion of women on boards, members and leaders

	2007	2010	2014	
			Members	Leaders
EU 27	22	36	28*	22*
Hungary	19	19	23	24

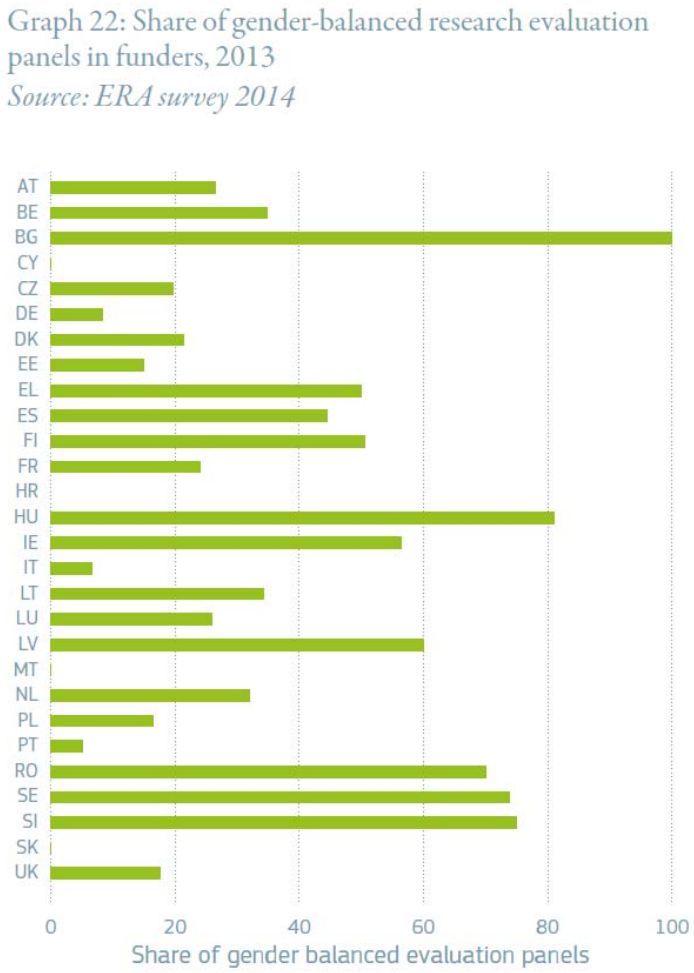
* Data for EU 28

Source: She Figures 2015, p.143 (data only for 2014); She Figures 2012, p.117; She Figures 2009, p.98

3.9.5 Percentage of research evaluation panels in RFOs that included at least 40% of target of under-represented sex in boards

In Hungary, gender-balanced research evaluation panels have a higher share amongst responding research funding organisations than the EU average (ERA facts & Figures 2014-Hungary p 350).

Figure 14: Share of gender-balanced research evaluation panels in funders, 2013



Source: ERA Facts and Figures 2014, p. 32

3.10 Inclusion of gender in research and teaching

3.10.1 Support to the inclusion of gender contents in research agendas by funders

Hungary has not yet integrated the gender dimension in its research programmes. The research funders in Hungary who responded to the ERA survey did not indicate any support for the inclusion of the gender dimension in their research agendas. Within the ERA-compliant cluster in Hungary, the share of research performing organisations that include the gender dimension in research content is lower than within the EU ERA-compliant cluster (ERA 2014 Hungary p 349).

Table 65: Support to the inclusion of gender contents in research agendas by funders (%)

	frequently	occasionally	none	not applicable	no answer
Hungary	0	0	100	0	0

Source: EC 2015, ERA facts and figures, p85

3.10.2 Inclusion of the gender dimension in research contents

This entails the integration of sex and/or gender analysis in the research content: Gender dimension (GD) is integrated in research content/programmes. The table shows that, compared to Western European and Scandinavian EU countries, Hungary displays a significantly lower level of inclusion of the gender dimension in research content.

Table 66: Inclusion of the gender dimension in research content (%RPO)

	yes	no	not known	not applicable
Hungary	11,4	66,8	10,3	11,5

Source: EC 2015, ERA facts and figures, p85

Contrary to the above data, the 2016 ERA Progress Report country snapshot reports positive performance in the inclusion of the gender dimension in research content, leading the EU-28 average by 57% (ERA 2016 Hungary).

3.10.3 Inclusion of the gender dimension in teaching/curricula

The Hungarian curriculum reform has not integrated the gender dimension yet. Besides formal education, civil and individual informal educational initiatives have significant role in fostering the importance of the gender dimension (Kereszty 2007). The issue of minority education in general gained more attention after the political regime change, but it is not fully integrated into the whole of the education policy. However, the curriculum of the year 2013 included the equal opportunities of men and women, as a principle. Gender is very rarely specified in Hungary as a relevant aspect of the equality discourse in educational policies. However, such lack of recognition is at least mentioned in the public education report in 2000 (Thun 2004). The issue of gender equality is often identified as ‘some sentimental social justice vision, which cannot be catered for in education’ (Thun 2004: 64). The lack of equality discourses and implementations and the reasons of why feminist activism cannot be a tool for pressuring policy changes have historical roots in Hungary: the state socialism discredited the ‘women's question’ by the implementation of bureaucratic measures, which went against women’s own will (Thun 2004).

4. Evaluation Culture and Policy

4.1 Description of Evaluation Culture

4.1.1 Explicit legislation and adoption of evaluation standards

The EVAL-INNO (2014) project identifies three main indicators regarding the formal rules for RTDI evaluation in South-East Europe. (**Fehler! Verweisquelle konnte nicht gefunden werden.**67) According to this, although there are explicit legislative provisions for RTDI evaluation, there are no special provisions and standards in place in Hungary.

Table 67: The three main indicators regarding formal rules for RTDI evaluation

	Special provisions for RTDI evaluations	Explicit legislation	Standards
Austria	No	Yes	Yes
Bulgaria	No	No	No
Greece	No	No	No
Hungary	No	Yes	No
Montenegro	No	No	No
Serbia	No	No	No

Source: EVAL-INNO (2014) p.14

The Law LXXVI of 2014 on Scientific Research, Development, and Innovation stipulates that the NRDI Office is responsible for the development of methodologies, background analyses, reports required for the planning of RDI programmes, concepts and strategies, as well as for the evaluation and monitoring of the funding programmes. The guiding principles of this law prescribe regular monitoring and independent evaluation of RDI support measures, in line with the principles of the Europe 2020 – Innovation Union document. According to this law, the president of the NRDI Office is responsible for launching evaluations and monitoring the impact of research and innovation funding programmes.

There is no public debate in Hungary on the evaluation culture in RTDI.

4.1.2 Budget, number, frequency and public access to evaluations

In Hungary the availability of formal evaluation reports for R&I policies, programmes or support measures and the visibility of those evaluations in the R&I policy discourse remain limited.

There is no summarised budget for RTDI evaluation published in Hungary.

4.1.3 Actors and institutions

As stated above, according to the Law LXXVI of 2014 on Scientific Research, Development, and Innovation, the NRDI Office is responsible for the development of methodologies, background analyses, reports required for the planning of RDI programmes, concepts and strategies, as well as for the evaluation and monitoring of the funding programmes. The guiding principles of this law

foresee regular monitoring and independent evaluation of RDI support measures in line with the principles of the Europe 2020 – Innovation Union document. According to this law, the president of the NRDI Office is responsible for launching evaluations and for monitoring the impact of research and innovation funding programmes.

4.1.4 What kind of evaluations are commissioned and conducted?

As stated above, the availability of formal evaluation reports for R&I policies, programmes or support measures and the visibility of those evaluations in the R&I policy discourse in Hungary remain limited. Not considering programmes financed under the EU Structural Funds, practically all the evaluations conducted so far are ex-post evaluations.

A general review of the policies was carried out by the OECD eight years ago (OECD, 2008). Its main recommendations included:

- Improving the framework conditions for innovation
- Strengthening the human resource base for science, technology and innovation
- Improving the governance of the innovation system
- Promoting innovation in the business sector
- Strengthening the links in the innovation system
- Fostering critical mass, excellence and relevance in public research
- Maximising benefits from the internationalistaion of R&D

Another example is a programme evaluation, prepared 6 years ago for the Research and Technology Innovation Fund (Ernst & Young and GKI, (2010)). The external evaluators highlighted the limited availability and inconsistencies of data that were made available for the evaluation project, and gave a low rating of the overall governance and implementation modalities of the Fund, highlighting the limited involvement of the advisory and coordination bodies in R&I policy-making, as well as imperfect monitoring.

Another evaluation report, conducted by the European Science Foundation (ESF, 2014), documents the international peer review of the Scientific Research Fund (OTKA, Országos Tudományos Kutatási Alapprogramok, integrated since 2015 into the operations of the NRDI Office). It commented on the proposal evaluation practices within the Fund, praised the administration for being highly competent and efficient in supporting the beneficiaries, as well as having in principle the appropriate procedures and selection criteria in place and involving the scientific community in the decision-making. However, the report suggested that the Fund improve and "review its selection procedures with regards to fairness and impartiality" (ESF, 2014, p. 26). Results of the above-mentioned OTKA evaluation report indicate also limited cultural and procedural support for research integrity.

Another evaluation conducted in recent years focused on the supporting mechanisms for support schemes facilitating Hungary's participation in EU FP7 (NIH, 2014).

Two comprehensive evaluation reports evaluated the Research and Technological Innovation Fund between 2004-2014 (NIH, 2012 and NKFIH, 2016). These evaluations list the programme evaluations financed from the Technological Innovation Fund between 2004-2014, which are publicly available:

- Evaluation of the national and international experiences of the INNOCSEKK programme, recommendations for directions and means for its development. Ipargazdasági Kutató és Tanácsadó Kft., 2007.
- Data security and informatics audit of the FORRÁS SQL és PKR data systems for managing RTDI calls for proposals. IT Business Consulting, 2008.
- Examination of the operation and financial management of the National Research and Technology Office, the Office for R&D tendering and utilization of Research results and the Research and Technology Fund, 2008. Expert Management Consulting Kft., 2008.
- Comprehensive assessment study about the operation of the Research and Technology Fund (KTIA), 01.01.2004 – 31.12.2009. Ernst & Young and GKI, 2010.
- Examination and development of the peer review system of the proposals submitted to the Research and Technology Fund, February 2010. Equinox Consulting Kft., 2010.
- Economic utilization of projects financed from the Research and Technological Fund and from operational programmes related to RTDI (GOP 1, GVOP 3 és KMOP 1.1) ECOSTAT Hatásvizsgálati Központ. ECOSTAT, 2012a.
- Impact of discontinuing the possible reduction of the innovation levy on the RTDI activity and economic performance, ECOSTAT Hatásvizsgálati Központ. ECOSTAT, 2012b.

The overall number of external evaluations of RTDI programmes and institutions in Hungary remains very limited. According to explanations provided by the NRDI Office, the Hungarian government acknowledges this shortage and is preparing a dedicated regulation concerning the evaluation of R&I programmes. Moreover, the Monitoring Committee of EU-funded Operational Programmes (2014-2020) is expected to approve a comprehensive plan for monitoring and the evaluation of these programmes.

In terms of the development of the evaluation culture, the president of the NRDI Office stressed in his public interventions and interviews that he initiated an impact assessment of the RDI funding programmes of the previous funding period 2007-2013, which has not been published yet. (RIO country report 2015 Hungary p28)

Participatory policy preparation tools (e.g. foresight) for designing RTDI concepts and sectoral strategies have rarely been used. Nevertheless, the S3 White Book foresaw the application of modern innovation policy decision-making tools, such as evaluation, foresight, technology assessment and Delphi-surveys. Apart from the six RDI Sectoral White Books (NIH (2012b)) (i.e. agriculture and food processing; health industry; energy; ICT; environment protection; mobility, vehicle industry and logistics) related to the National Smart Specialisation Strategy (NIH 2014a), no comprehensive study of strategic intelligence was published in recent years.

As for the Operational Programmes of the EU Structural Funds related to financing innovation, there are regular evaluations as prescribed in the Common Provision of Regulations[11] and other relevant regulations related to the EU Structural Funds (ex-ante, ex-post, interim evaluations).

[11] COM(2013) 246 final, 2011/0276 (COD)

4.1.5 Relevance of gender equality in RTDI evaluations & evaluation of gender equality initiatives in RTDI

There are no prescriptions or practices in Hungary concerning the evaluation of gender equality in RTDI evaluations or the evaluation of gender equality initiatives in RTDI.

As for the programmes financed under the EU Structural Funds, there are horizontal requirements concerning gender equality. These are evaluated in the framework of the overall evaluation exercises in the case of the Operational Programmes of the EU Structural Funds related to financing innovation.

4.1.6 Recent trends/developments in RTDI policy evaluation

There is no STI policy monitoring or evaluation culture in Hungary. This situation has somewhat changed with the establishment of the Science and Technology Observatory (called Kaleidoscope information service) within the National Innovation Office in 2012. (RIO country report 2015 – Hungary, p18) After several years of planning, this service provided stakeholders of the innovation system with reliable data and reports. The Observatory's role has been taken over by the Department for Analysis and Information of the NRDI Office since 2015.

Apart from the obligatory ex-post evaluation of projects financed from the Operational Programmes and co-funded by the Structural Funds, national research and innovation funding schemes are not subject to systematic evaluation. A most recent exception was the international evaluation of OTKA, described above which was carried out by foreign experts based on an agreement with the European Science Foundation.

Hungary was one of the first EU Member States, together with Bulgaria, which requested the peer review of their national innovation system within the framework of the Horizon 2020 Policy Support Facility. The pre-peer review report of the expert group was published in mid-October 2015. The report analysed the Hungarian R&I system in detail and identified the following four focus areas for peer review in order to come with appropriate solutions: i) RTDI governance, funding and policy-making; ii) availability of human resources for R&I; iii) university-industry cooperation, technology transfer and entrepreneurship; iv) framework conditions for innovation in the business sector. (Peer Review, 2016)

As for the foreseen monitoring and evaluation mechanisms, the S3 strategy (NIH (2014a)) clearly specifies the reasons for an effective monitoring and evaluation mechanism. Three kinds of evaluation methods are envisaged: interim evaluation, on-going evaluation and ex-post evaluation. The provisions of the S3 foresee that the implemented evaluation will be both normative and summative according to pre-defined indicators. (RIO country report Hungary, 2015, P34)

4.2 Evaluation utilisation and policy learning

Concerning the former National Scientific Research Fund (OTKA), the OTKA Board decided to commision the European Science Fund in 2012 to carry out an evaluation. Published in November 2014, the conclusions of the Evaluation Committee review (ESF, 2014) and the survey were overwhelmingly positive in terms of OTKA’s governance, administrative procedures and its potential

for an expanded role in the Hungarian research system. Concerning an evaluation policy, OTKA should:

- monitor both the academic and socio-economic impact of funded research by performing an assessment of wider and longer-term impacts of its activities through periodic surveys of grant beneficiaries. (RIO country report Hungary 2015, p29)

The Peer Review 2016 highlighted that it was important for RTDI policy developments that programmes and support measures should be evaluated. Evaluation uses objective methods to assess the effectiveness and efficiency of specific measures so that policy-makers and broader stakeholders can learn to improve policy and programme managers are held to account. Despite a legal obligation to conduct programme evaluations, which was introduced in 2004, evaluation culture and the practice to ensure accountability, transparency and learning in RTDI policy is poor, especially at the programme level. A recent review of RTDI policy concluded that Hungary has little experience in the design, implementation and evaluation of R&I strategies (EVAL-INNO, 2014, p. 28).

The Peer Review highlighted key messages for Hungary:

- As an important component of strategic RTDI policy intelligence, evaluations must be respected and should be utilised by the highest level of policy-making and policy delivery.
- Evaluations are to be based on sound evidence combined with a fair judgement of independent experts.
- Evaluations should not be ad-hoc (although sometimes such evaluation is necessary too) but regularly planned and sufficiently budgeted.
- Evaluations should be based on commonly agreed procedural standards to guarantee a transparent use.
- A conducive evaluation culture and evaluation framework has to be developed, and an organised platform of practitioners, policy-makers and policy implementers is a very helpful tool to support learning, to build a relevant community and link it to international communities, to build peer pressure regarding good practice and thus to establish a favourable evaluation culture.

The Peer Review panel formulated its recommendations as follows:

- "The panel supports a move towards increased evidence-based policy-making, including through the use of foresight and through the systematic evaluation of RTDI policies, programmes and support measures. It calls for evaluations of the outputs and outcomes of programmes and projects to be managed in a clear and transparent way and to be delivered in a timely and efficient fashion, giving due publicity to them and eliminating undue bureaucracy".
- "All priority RTDI programmes should be rigorously evaluated at appropriate times using international reviews and standards. The outputs of those programmes should be evaluated against their objectives and funding. The systematic and meaningful international evaluation of the whole set of national R&I programmes should lead to incremental improvements of a core set of programmes that should remain stable over time to assure system predictability."
- About the development process concerning the recommendations there is a plan to review the current practice, but so far this has not been implemented.

5. Conclusions

5.1 Comparison between gender equality in the labour market and in RTDI

- Gender gap

Despite the fact that the employment rate increased during the last decade in Hungary, the gender gap remained unchanged. Motherhood still has a significant negative effect on women's employment and the age of the child has a significant impact on women's employment rate. In Hungary the share of working mothers with children under the age of three is extremely low. The long maternity leave alienates mothers from the labour market and women face serious difficulties in returning to work: their knowledge becoming obsolete, the loss of social capital and the discrimination of young mothers in the labour market. The lack of atypical employment and part-time work together with insufficient childcare services are also important barriers (Bálint and Köllő 2008). Balancing work and family life is still a major problem for young mothers in Hungary, especially for those higher educated women who consider both life domains equally important (Nagy-Paksi 2014).

Concerning RTDI, although the share of women with tertiary education is increasing in Hungary, their proportion decreases during further career steps. The share of women at higher level positions especially in the field of engineering, manufacturing and construction, is significantly low. Meanwhile, the gender gap is widening among scientists and engineers, especially in the business enterprise sector, and this discrepancy cannot be counterbalanced by the public sectors.

The Hungarian government has not applied any gender quotas to ensure a representative gender balance. Vertical segregation is visible in medium and top-level positions, especially in male-dominated fields in the private sector. Socialisation, motivation, attitudes, work-life balance, socio-cultural factors, organisational cultures, gender roles, segregated labour market, lack of network etc. – these are all elements of women's vertical segregation (Nagy 2013).

In RTDI, women face an even more rigid masculine organisational culture than in other fields. (Nagy 2014).

- Working contracts and work patterns

Flexible working patterns are not supported in Hungary, telework, home office and other flexible forms of work are very rare.

In RTDI HES and GOV sectors are special in this sense: home office is usually available for researchers in both sectors. The opportunity offered to researchers for part-time work is higher in the public sector (research universities and institutes) than in the private sector. However, in knowledge-intensive professions this atypical form of work is not widespread in Hungary at all. Taking into consideration the lower salary and the lower chance for career advancement in part-time jobs, even women avoid choosing this opportunity, even if there is any (Paksi, Nagy and Király, manuscript).

Precarious working contracts are more typical in RTDI, especially in the case of young researchers. Youths are typically employed with fix and short-term contracts, leaving them without any long-term career prospects. This may be a reason for the high number of young women renouncing their academic careers.

Female researchers are more likely to work in HES and GOV but salaries in public research universities or institutes are lower than in the private sector.

5.2 Main strengths and weaknesses of the innovation system and their impact on gender equality in RTDI

On the basis of the conclusions of the workshop on the 28 February 2017 the importance of gender equality in the field of RTDI policy can be summarised as follows:

- In order to strengthen social cohesion, ensuring gender equality is important within the framework of ensuring equal opportunities and non-discrimination.
- Gender equality contributes also to the realisation of the smart, sustainable and inclusive growth target of the EU 2020 strategy.
- In addition to the moral expectations, equal participation of the genders in the economic processes ensures an economic added value.
- Promoting gender equality in science and technology contributes to the self-evaluation and self-esteem of the female population.
- Without ensuring the justified participation of women in RTDI, an important added value of the human resources could be lost.
- The differences in intuitiveness and special approaches of the different genders can contribute to the RTDI results.
- There could be gender-sensitive differences among the various scientific fields, where the aspects of women could be lost.

Forms of gender equality in the RTDI programmes and projects are as follows:

- Horizontal requirements for ensuring gender equality are compulsory only for RTDI programmes and projects co-financed by the EU Structural Funds. Although these are generally formal measures, it would be desirable to ensure the inclusion of these measures into all RTDI programmes and projects in Hungary.
- In gender-relevant scientific fields it would be desirable to have quotas in RTDI projects. In some cases the proposers include quotas voluntarily (e.g. in a call for proposal for smart cities).
- In innovation projects impacting or targeting welfare, ensuring gender equality could substantially enhance the project's results.
- There are good examples for gender involvement requirements in case of projects for individual researchers (former OTKA[12] calls for proposals.)

The main strengths and weaknesses of the Hungarian innovation system as described in chapter 1.1.1 are summarised as follows:

- On the basis of the European Innovation Scoreboard 2016, Hungary is a Moderate Innovator.

[12] National Scientific Research Fund

- In the individual dimensions of the innovation index, the performance relative to the EU had fluctuations, over time it has slightly declined.
- Hungary performs below the EU average in all dimensions, and nearly all indicators, especially for Community designs and Non-EU doctorate students.
- Relative strengths in terms of indicators are observed in License and patent revenues from abroad and Exports of medium and high tech products.
- For more than half of the indicators, performance has improved. A high level of growth is observed for R&D expenditures in the business sector, Community trademarks and Population with completed tertiary education.
- Notable declines in performance are observed in PCT patent applications in societal challenges, Community designs, and Sales share of new product innovations.
- Hungary's human resources performance increased in the last 8 years but it reached only 80% of the EU average; in the subdimension New doctorate graduates the increase was 3.6% but in 2015 it was only 49% of the EU average, while the increase was 6.3% in the subdimension Population in completed tertiary education, reaching 91% of the EU average, and, although there was no increase in the subdimension Youth upper secondary level education, it is higher than the EU average with 102 %.

The conclusions of the workshop on the 28 February 2017 highlighted the impacts of the strengths and weaknesses in the RTDI system with respect to the equal opportunities of the genders as follows:

- Weaknesses of the RTDI system in the field of human resources seem to be directly correlated with the ensuring and realisation of gender equality
- Gender opportunities in the field of RTDI are influenced by internal issues within the RTDI system, but also by external issues (e.g. differences in education, working opportunities, differences in the general social status etc.)
- It would be highly desirable to ensure the participation of women in different committees for evaluating calls for proposals.
- The instability of RTDI governance negatively impacts gender equality
- Promotion tools can contribute to ensuring equal opportunities and at the same time to strengthening the RTDI system. A good example: the Hungarian National Talent Program[13].
- Introduction of gender quotas could be justified in some cases (e.g. in 2016 there was not a single woman among the new scientific members of the Hungarian Academy of Sciences).
- It is a major weakness of the RTDI system that, although equal opportunity plans are obligatory for RPOs, a huge proportion of them have not implemented this law yet, and even many of those developing such plans do not apply them.
- Elaborate regulations are needed for eliminating inequality, involving academic knowledge during the whole elaboration. Links between stakeholders and experts should be established or strengthened for the elaboration of equality action plans and strategies.
- There is a vital need for a young research generation in RTDI, especially for women in the business enterprise sector. Sufficient curricula and teaching methods during secondary education, long-term researcher career model, stable labour market conditions and competitive salaries are needed to increase young researchers' share in RTDI and avoid the brain drain.

[13] http://tehetsegprogram.tehetseg.hu/

- Though there are good practices in RTDI, the field still lacks sufficiently facilitating measures for the reconciliation of professional, private and family life. There is a need for further strategy action plans, such as between 2010-2011.
- Flexible working conditions, an unbiased and supportive environment and increased visibility would foster women's career advancement and an equal representation in RTDI.
- Sensitizing leaders and stakeholders towards equal opportunities would be vitally important in Hungary, where traditional family and social roles prevail.

5.3 Main issues of evaluation culture and policy in RTDI

In Hungary the Law LXXVI of 2014 on "Scientific Research, Development, and Innovation" stipulates that the NRDI Office is responsible for the elaboration of methodologies, the preparation of background analyses and reports required for the planning of RDI programmes, concepts and strategies, as well as for the evaluation and monitoring of the funding programmes. The guiding principles of this law foresee regular monitoring and independent evaluation of RDI support measures following the principles of the Europe 2020 – Innovation Union document.

Nevertheless, there are no standardised procedures, or anearmarked budget for the evaluation of RTDI programmes and projects.

The Peer Review highlighted key messages on the evaluation of RTDI programmes and projects for Hungary:

- As an important component of strategic R&I policy intelligence, evaluations must be respected and should be utilised by the highest level of policy-making and policy delivery.
- Evaluations are to be based on sound evidence combined with a fair judgement of independent experts.
- Evaluations should not be ad-hoc (although sometimes necessary) but regularly planned and sufficiently budgeted.
- Evaluations should be based on commonly agreed procedural standards to guarantee a transparent use.
- A conducive evaluation culture and evaluation framework have to be developed and an organised platform of practitioners, policy-makers and policy implementers is a very helpful tool to support learning, to build up a relevant community and link it to international communities, to build up peer pressure regarding good practice and thus to establish a favourable evaluation culture.

The Peer Review also formulated its recommendations as follows:

- "The panel supports a move towards increased evidence-based policy-making, including through the use of foresight and through the systematic evaluation of R&I policies, programmes and support measures. It calls for evaluations of the outputs and outcomes of programmes and projects to be managed in a clear and transparent way and to be delivered in a timely and efficient fashion, giving due publicity to them and eliminating undue bureaucracy".
- "All priority R&I programmes should be rigorously evaluated at appropriate times using international reviews and standards. The outputs of those programmes should be evaluated

against their objectives and funding. The systematic and meaningful international evaluation of the whole set of national R&I programmes should lead to incremental improvements of a core set of programmes that should remain stable over time to assure system predictability."

The conclusions of the workshop on the 28 February 2017 reiterated the main issues of evaluation culture and policy in RTDI as follows:

- The availability of formal evaluation reports for R&I policies, programmes or support measures and the visibility of those evaluations in the R&I policy discourse in Hungary remain limited.
- There are no prescriptions and no practice in Hungary concerning evaluation of gender equality in RTDI evaluations & evaluation of gender equality initiatives in RTDI.
- RTDI programmes financed under EU Structural Funds are evaluated also with respect to gender equalities in the framework of the overall evaluation exercises. It would be desirable to translate this practice to all RTDI programmes and projects in Hungary.
- Gender equality should be incorporated in all public policy and development policy. This gender mainstreaming calls for assessing the impact of measures on the equality of men and women also in RTDI fields.
- Appropriate indicators should be used for input and output measurement (impact and result indicators).
- Assessing the social impacts of RTDI programmes and projects, it is important to assess also the impacts on gender equality.

6. Glossary

AETR	Average Effective Tax Rate
BES	business enterprise sector
CEDAW	Convention on the Elimination of All Forms of Discrimination against Women
CEEPUS	Central European Exchange Program for University Studies
DI	Dissimilarity Index
EIS	European Innovation Scoreboard
ESF	European Science Foundation
ETA	Equal Treatment Authority (Egyenlő Bánásmód Hatóság)
FTE	full-time equivalent
GE	gender equality
GCI	Glass Ceiling Index
GERD	share of Gross Domestic Expenditure on R&D
GINOP	Operative Programme for Economic Development
GOV	government sector
GYED	child care payment
GYES	child care allowance
HAESF	Hungarian-American Enterprise Scholarship Fund
HAS	Hungarian Academy of Sciences
HEI	higher education institution
HES	higher education sector
HRST	human resources in science and technology
ISCED	International Standard Classification of Education
IT	information technology
KIA	knowledge intensive activities
KIABI	knowledge intensive activities – business activities
KSH	Hungarian Central Statistical Office
KTIA	Research and Technological Innovation Fund
NACE	statistical classification of economic activities in the European Community [Nomenclature statistique des activités économiques dans la Communauté européenne]
NFK	National Development Cabinet
NGO	non-governmental organisation
NRDI Office	National Research, Development and Innovation Office
NTIT	National Science Policy and Innovation Board
NUTS	Nomenclature of Territorial Units for Statistics
OECD	Organisation for Economic Co-operation and Development
OTKA	National Scientific Research Fund
PPP	purchasing power parity
R&D	Research and Development
R&I	Research and Innovation
RFO	Research Funding Organisation
RPO	Research Performing Organization
RTDI	Research, Technology, Development, Innovation
STEM	science, technology, engineering and mathematics
STI	Science, Technology and Innovation
TFR	Total Fertility Rate
VEKOP	Operative Programme for Competitive Central Hungary

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Annex

Ranking in the EIS among EU member states and the EU average between 2008 and 2015

	EIS Ranking							
	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
EU	12	12	12	12	12	12	12	12
Austria	7	6	7	9	9	7	9	10
Denmark	5	5	4	2	2	2	2	2
France	10	10	10	10	10	11	11	11
Germany	4	4	3	3	3	3	4	4
Hungary	21	22	21	21	21	22	22	22
Spain	19	19	19	19	19	19	20	21
Sweden	1	1	1	1	1	1	1	1

Source: EIS 2016 database

Development of GERD (gross domestic expenditure on R&D) as a percentage of GDP between 2005 and 2015 by sector of performance

		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
EU (28 countries)	All sectors	1,74	1,77	1,77	1,84	1,93	1,93	1,97	2,01	2,03	2,04	2,03
	BES	1,1	1,12	1,12	1,16	1,19	1,19	1,24	1,28	1,29	1,3	1,3
	GOV	0,24	0,23	0,23	0,24	0,26	0,25	0,25	0,25	0,25	0,25	0,24
	HES	0,39	0,39	0,4	0,42	0,46	0,47	0,46	0,47	0,48	0,48	0,47
	PNP	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02
Austria	All sectors	2,38	2,37	2,43	2,59	2,61	2,74	2,68	2,93	2,97	3,06	3,07
	BES	1,66	1,67	1,72	1,79	1,78	1,87	1,84	2,06	2,1	2,16	2,18
	GOV	0,12	0,12	0,13	0,14	0,14	0,14	0,14	0,13	0,13	0,14	0,14
	HES	0,59	0,57	0,58	0,65	0,68	0,71	0,69	0,72	0,72	0,74	0,75
	PNP	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
Denmark	All sectors	2,39	2,4	2,51	2,78	3,07	2,94	2,97	3	3,01	3,02	3,03
	BES	1,63	1,61	1,76	1,94	2,14	1,97	1,98	1,97	1,91	1,87	1,87
	GOV	0,15	0,16	0,08	0,07	0,06	0,06	0,06	0,07	0,07	0,07	0,07
	HES	0,59	0,62	0,66	0,76	0,85	0,89	0,92	0,95	1,02	1,07	1,08
	PNP	0,02	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
France	All sectors	2,04	2,05	2,02	2,06	2,21	2,18	2,19	2,23	2,24	2,24	2,23
	BES	1,27	1,29	1,27	1,29	1,36	1,37	1,4	1,44	1,45	1,45	1,45
	GOV	0,36	0,34	0,33	0,33	0,36	0,3	0,3	0,29	0,29	0,29	0,29
	HES	0,38	0,39	0,39	0,41	0,46	0,47	0,46	0,46	0,47	0,46	0,45
	PNP	0,03	0,02	0,02	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03
Germany	All sectors	2,42	2,46	2,45	2,6	2,72	2,71	2,8	2,87	2,82	2,89	2,87
	BES	1,68	1,72	1,71	1,8	1,84	1,82	1,89	1,95	1,9	1,95	1,95
	GOV	0,34	0,34	0,34	0,36	0,4	0,4	0,41	0,41	0,42	0,43	0,43
	HES	0,4	0,4	0,39	0,43	0,48	0,49	0,5	0,51	0,51	0,51	0,5
	PNP	:	:	:	:	:	:	:	:	:	:	:
Hungary	All sectors	0,92	0,99	0,96	0,98	1,14	1,15	1,19	1,27	1,39	1,36	1,38
	BES	0,4	0,48	0,48	0,52	0,65	0,69	0,75	0,83	0,97	0,97	1,01
	GOV	0,26	0,25	0,23	0,23	0,23	0,21	0,19	0,18	0,21	0,19	0,18
	HES	0,23	0,24	0,22	0,22	0,24	0,23	0,24	0,23	0,2	0,18	0,17
	PNP	:	:	:	:	:	:	:	:	:	:	:
Spain	All sectors	1,1	1,17	1,23	1,32	1,35	1,35	1,33	1,29	1,27	1,24	1,22
	BES	0,59	0,65	0,69	0,72	0,7	0,69	0,69	0,68	0,67	0,65	0,64
	GOV	0,19	0,2	0,22	0,24	0,27	0,27	0,26	0,25	0,24	0,23	0,23
	HES	0,32	0,32	0,33	0,35	0,38	0,38	0,37	0,36	0,36	0,35	0,34
	PNP	0	0	0	0	0	0	0	0	0	0	0
Sweden	All sectors	3,39	3,5	3,26	3,5	3,45	3,22	3,25	3,28	3,31	3,15	3,26
	BES	2,47	2,61	2,38	2,59	2,45	2,21	2,24	2,22	2,28	2,11	2,27
	GOV	0,17	0,16	0,16	0,16	0,15	0,16	0,14	0,16	0,12	0,12	0,11
	HES	0,75	0,72	0,71	0,74	0,85	0,85	0,85	0,89	0,9	0,91	0,88
	PNP	0,01	0,01	0,01	0,01	0	0	0,01	0,01	0,01	0,01	0,01

Source: Eurostat, tsc00001

Ranking on the proportion of scientists and engineers in the active population between 15 and 74 years, by year

	2008	2009	2010	2011	2012	2013	2014	2015
United Kingdom	10	10	11	2	2	1	1	1
Sweden	3	4	5	1	1	1	2	2
Finland	3	5	3	3	3	3	4	3
Netherlands	6	7	7	6	6	7	6	4
Denmark	7	6	6	4	5	4	5	5
Ireland	2	2	2	4	4	5	7	6
Belgium	1	1	1	9	8	8	8	7
Luxembourg	5	3	4	7	6	6	2	8
Slovenia	11	12	13	11	12	10	10	9
Germany	9	8	8	8	9	9	9	10
Estonia	16	15	12	15	16	14	14	11
Lithuania	13	14	19	13	13	13	11	11
Poland	11	10	10	12	11	12	11	13
Portugal	26	26	26	18	22	21	13	14
Czech Republic	21	21	21	25	21	18	16	15
Austria	25	24	21	19	18	15	17	16
Bulgaria	23	24	27	19	22	21	17	17
France	8	9	9	10	10	11	15	18
Spain	14	13	14	16	19	16	19	19
Cyprus	15	17	14	17	14	20	21	19
Romania	20	19	19	14	16	19	20	19
Malta	17	15	16	22	14	16	22	22
Hungary	17	17	16	19	20	21	23	23
Latvia	21	22	23	22	25	25	24	24
Greece	17	19	16	24	24	24	26	25
Croatia	26	27	23	27	26	26	25	26
Italy	23	23	23	26	27	26	27	27
Slovakia	28	28	28	28	28	28	28	28

Source: Own calculation on the base of Eurostat, HRST by category, sex and age [hrst_st_ncat]